

Team C4ISR

Team C4ISR and Industry...
Partnering in Support
of the Joint Warfighter
June 1-2, 2004

Advance
Planning
Briefing for
Industry



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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY

HEADQUARTERS, U.S. ARMY COMMUNICATIONS-ELECTRONICS COMMAND

AND FORT MONMOUTH

FORT MONMOUTH, NEW JERSEY 07703-5000

Office of the Deputy Chief of Staff for Operations and Plans

Ladies and Gentlemen:

On behalf of the Army Team, Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR), it is my pleasure to welcome you to the 2004 Advance Planning Briefing for Industry (APBI). The theme of this year's conference is "Team C4ISR and Industry Partnering in Support of the Joint Warfighter."

Global security demands one flexible, formidable and joint fighting force equipped with the most sophisticated and technologically superior equipment. The APBI Program continues to be one of our most successful ways of strengthening the government's partnership with industry and ensuring improved combat effectiveness for our military forces. The exchange of information at these forums is key to enabling Joint Warfighters to fight smarter with less risk.

A printed copy of the proceedings and a compact disk containing information about the APBI presentations are being provided to you. The presentations include our Army requirements, sustainment efforts and corresponding contract opportunities available to industry.

I thank you for your participation in the APBI and hope you pursue future business opportunities with Team C4ISR.

Sincerely,

A handwritten signature in black ink, appearing to read "William H. Russ", is written over a horizontal line.

William H. Russ
Major General, U.S. Army
Commanding

NOTICE

This publication contains the briefings presented during this Advance Planning Briefing for Industry (APBI). Following the APBI, you may obtain a Proceedings Book for a minimal fee by contacting the Defense Technical Information Center (DTIC). The telephone number is: (800) 225-3842.

We hope that the above publication proves beneficial to your long-range planning efforts. If you have any additional questions and/or suggestions, please contact Denise Ellison, email: Denise.Ellison@us.army.mil, (732) 532-8674.

DISCLAIMER

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The information provided is accurate as of the time of publication, and may be subject to change.

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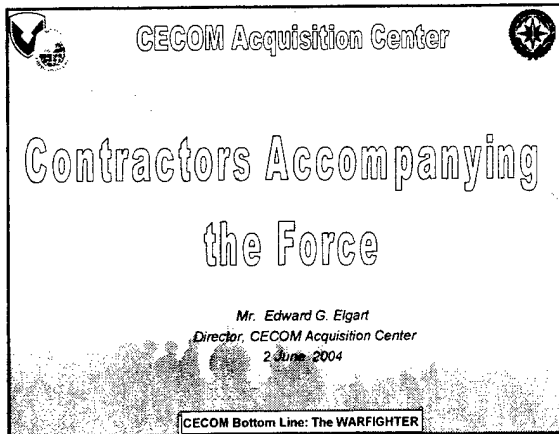
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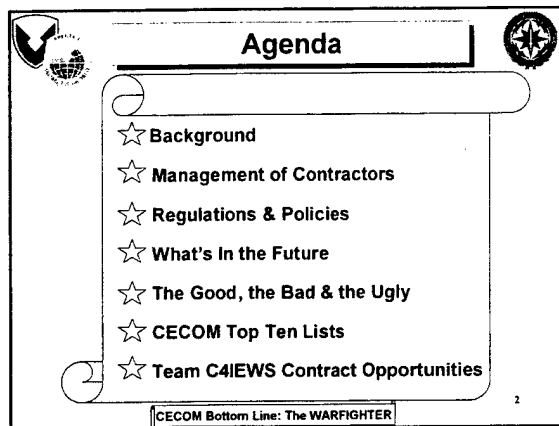
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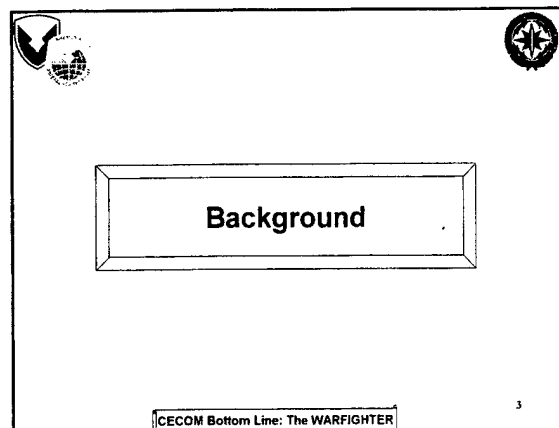
WELCOMING REMARKS



MG WILLIAM H. RUSS

**COMMANDING GENERAL
CECOM**









Background

- Contractor support is designed to augment military force structure -- not replace it
- Contractor support is used on an "as needed" basis
- Contractor contributions are a valuable force multiplier to the success of our Armed Forces
- Army's ability to manage operational contractor support (OCS) directly impacts readiness and sustainment
- New regulations lay out specific guidelines about chain of command and contract requirements



CECOM Bottom Line: The WARFIGHTER

Background



- Army has become increasingly more reliant on private companies
 - Logistical, technical support, combat support (CS), and combat service support (CSS) functions
 - Operation Desert Storm- 916 contractors personnel deployed to provide maintenance, technical assistance, and equipment support
 - Operation Enduring Freedom (OEF)/ Operation Iraqi Freedom (OIF) - 32,000 repair contractor personnel in the Central Command region sent by AMC alone

CECOM Bottom Line: The WARFIGHTER

Management of Contractors

CECOM Bottom Line: The WARFIGHTER



Management of Contractors

The management mechanism is the contract itself as defined by the terms and conditions

- Not under the direct supervision of military personnel
- The PCO and/or COR will monitor contractor performance and maintain day-to-day liaison activities

CECOM Bottom Line: The WARFIGHTER

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Management of Contractors

Following clauses are included in all contracts that require contractor deployment:

- FAR 52.228-3 Worker's Compensation Insurance:
 - As required by the Defense Base Act, Contractor must provide workers' compensation insurance
- FAR 52.228-4 Worker's Compensation and War Hazards Insurance Overseas
 - Benefits not otherwise covered by workers' compensation insurance are covered under the standards of the War Hazards Compensation Act
 - Contractor shall include this clause in all subcontracts or be responsible/liable for subcontractor employees

CECOM Bottom Line: The WARFIGHTER

*






Management of Contractors

- DFARS 252.228-7000 Reimbursement for War Hazard Losses
 - Contractor will be reimbursed by the Government costs for providing employee war-hazard benefits in accordance with the Workers' Compensation and War-Hazard Insurance clause
- DFARS 252.228-7003 Capture and Detention
 - The Government will reimburse the Contractor monies paid to captured person or person's dependents
 - Monies will not be paid if the employees were entitled to compensation for capture and detention under the War Hazards Compensation Act

CECOM Bottom Line: The WARFIGHTER



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Management of Contractors



- DFARS 252.225-7043 Antiterrorism/Force Protection Policy for Defense Contractors Outside the US
 - Requires contractors to affiliate with the Overseas Security Advisory Council
 - Requires contractor and subcontractor personnel to register with the U.S. Embassy and comply with any security related requirements
- DFARS 252.209-7001 Disclosure of Ownership or Control by Government of a Terrorist Country
 - If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclose such interest

CECOM Bottom Line: The WARFIGHTER
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Exiting and Forthcoming Regulations and Policies


CECOM Bottom Line: The WARFIGHTER
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Existing

- Army doctrine:
 - FM 3.100-21 - Contractors on the Battlefield
- Army regulation:
 - AR 715-9, Contractors Accompanying the Force
 - AFARS Clause 5152.225-74-9000 Contractors Accompanying the Force
- Army policy
 - AFARS Manual #2, Contingency Contracting

CECOM Bottom Line: The WARFIGHTER
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FM 3.100-21




FM 3.100-21 - Contractors on the Battlefield


- Theater support command is the lead organization to manage and maintain visibility for all contractors
- Commanders do not have direct control over contractor employees (only contractors manage and supervise their employees)
- The terms and conditions of contract establishes relationship between military and contractor – the link is the PCO/COR
- Contractors are required to perform all tasks identified within the Statement of Work (SOW)/Statement of Objectives (SOO)

CECOM Bottom Line: The WARFIGHTER

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FM 3.100-21




- Military units retain responsibility for ensuring all contractors deployed are prepared in accordance with AR 715-9
- Contractors may operate in the combat zone (if contract provides)
- Contractors can perform potentially any function except inherently governmental functions
- Establishes three conditions that must be met before contractor personnel can carry firearms
 - Commander in the area of operations must approve the carrying of firearms by contractors
 - Contractor company policy must permit its employees to carry arms
 - Contractor employee must agree to carry a firearm

CECOM Bottom Line: The WARFIGHTER

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AR 715-9





AFARS 5152.225-74-9000 Contractors Accompanying the Force

- Provides uniform, Department-wide guidelines for contractors accompanying military forces in hostile environments
- Clause addresses top-level issues
 - Assure coordination of operational requirements in the contract; and with the Combatant Commander in theater
 - Notification that operations may be in a dangerous environment
 - Be aware of pertinent rules and regulations in an OCONUS location
- Other critical areas covered
 - Purchasing Limited Resources
 - Vehicle and Equipment Operation
 - Contractor Personnel Administration
 - Compliance with Combatant Command Orders
 - Clothing and Equipment Issue
 - Weapons and Training
 - Passports, Visas and Customs

CECOM Bottom Line: The WARFIGHTER

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AFARS Manual #2

- Provides guidance for implementing the FAR, DFARS, and AFARS
- Provides general information on:
 - Legal Authorities, Limitations, and Policies
 - International Relations
 - Duties and Responsibilities
 - Contracting Procedures During Contingency Operations
 - Claims, Seizures, Disputes and Appeals
 - Contingency Contracting Support Kit

CECOM Bottom Line: The WARFIGHTER

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Forthcoming

- New DOD Directive/DOD Instruction
- New DFARS clause
- Update AFARS Manual #2 (Contingency Contracting)
- Develop AFARS Manual #3 (Contractors on the Battlefield)
- Revise FM 3.100-21 (Contractors on the Battlefield)

CECOM Bottom Line: The WARFIGHTER


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DFARS Clause

- Pending DFARS clause 252.225-70XX
 - Issued for comment in Federal Register, dated March 23, 2004 (Volume 69, Number 56); comments due March 24, 2004
 - Contractor accepts the risks associated with required contract performance
 - Contractor is responsible for all resources required to perform contractual effort
 - Contractor shall comply with all laws and regulations (Host Nation, treaties, etc.)
 - Contractor shall have a plan to remove/replace any personnel who jeopardize mission completion
 - Provides contractor all pre-deployment requirements
 - Instructions of the Combatant Commander take precedence of any existing terms of this clause
 - Authorizes contractors to carry privately-owned weapons

CECOM Bottom Line: The WARFIGHTER




Draft DOD Directive and Instruction




- Draft DoD Directive and DoD Instruction
 - Both titled “Management of Contractor Personnel During Contingency Operations”
 - Currently in staffing
 - Content covers many of the same areas as both the Army and DoD clauses:
 - Applicability of laws
 - Continuation of essential services
 - Deployment processing
 - Clothing & equipment
 - Weapons
 - Personnel accountability
 - Administrative preparation

CECOM Bottom Line: The WARFIGHTER

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AFARS & DFARS Comparison




- DFARS text includes existing AFARS text
 - Notification of Next of Kin
 - Evacuation of personnel and bodies
 - Insurance
 - Changes and Emergency Changes
 - DFARS allows combatant commander to “trump” contract transportation, logistical, and support requirements and the contractor may request an equitable adjustment
 - There is a separate paragraph that allows the same in “emergencies”
 - Clarifies contractor is responsible for all its employees’ support unless told otherwise in the contract or combatant commander’s operational order

CECOM Bottom Line: The WARFIGHTER

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AFARS & DFARS Comparison





- DFARS provides clarification language
 - Clause applies to service, construction, and supply contracts when contractors must accompany or be available to accompany a force in contingency, humanitarian, peacekeeping, or combat operations outside the US
- DFARS clause adds coverage to Part 12 (i.e. this can be used in commercial contracts)
- Authorized weapon
 - DFARS authorizes privately owned weapons
 - AFARS only authorizes government issue weapons
 - May be intended to address desire to allow contractors to provide their own security
 - Does not include requirement for contractor and employee to agree to carry a weapon, as does the AFARS clause

***Current indication is that upon implementation of DFARS Clause, AFARS language will be revised or deleted.

CECOM Bottom Line: The WARFIGHTER



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Contractors Accompanying the Force: The Good, Bad, and Ugly

CECOM Bottom Line: The WARFIGHTER

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The Good

- Contractor deployment provides for the increase/decrease of available support resources quickly in response to changing requirements
 - Can extend existing military capability,
 - Provide alternative sources of supplies and services, or
 - Provide capabilities for which no military capability exists

CECOM Bottom Line: The WARFIGHTER

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The Bad - RISK

- Contractors cannot provide their own security; require military escorts resulting in additional military personnel
- Proximity to the battlefield
- Nuclear, Biological, Chemical (NBC) threat – protective gear not guaranteed
- Classified as noncombatants
 - An individual in any unit of the armed forces which is unarmed at all times
 - When armed, unclear distinction as to combatant/noncombatant
 - Result is contractor is afforded some, but not all, of the protections

CECOM Bottom Line: The WARFIGHTER

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The Ugly

- Lack of contractor performance
 - Poor performance/no performance
 - Potential of individuals to walk off the job
 - Legal ramifications (i.e. Contract termination, consideration)
- Limited or no alternatives/remedies available to commander in the field

CECOM Bottom Line: The WARFIGHTER



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CECOM Top 10 Lists

CECOM Bottom Line: The WARFIGHTER

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CECOM Top Ten Large Businesses - FY2003

Contractor	# Actions	Total \$
•Raytheon	292	492.0M
•General Dynamics	404	415.0M
•Lockheed	503	325.0M
•ITT	179	269.0M
•MITRE	92	259.0M
•Northrop Grumman	344	219.0M
•ARINC	324	182.0M
•TRW	168	167.0M
•Harris	87	129.0M
•Computer Sciences	166	112.0M

CECOM Bottom Line: The WARFIGHTER

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CECOM Top Ten Small Businesses - FY2003		
Contractor	# Actions	Total \$
•Signal Corp/Veridian IT Services	316	176.0M
•Bren-Tronics, Inc.	24	78.0M
•Sytex, Inc.	175	70.0M
•Ultralife Batteries, Inc.	12	51.0M
•EIOR Technologies, Inc.	185	48.0M
•Chenega Technology Services	105	47.0M
•Fibertek, Inc.	156	38.0M
•TAMSCO	24	35.0M
•Datapath, Inc.	52	30.0M
•Galaxy Scientific Corp.	33	27.0M
•Engineering & Professional Services	39	21.0M
CECOM Bottom Line: The WARFIGHTER		

CECOM Top Ten 8(a) Businesses - FY2003		
Contractor	# Actions	Total \$
•Chenega Technology	105	47.0M
•Engineering Systems Solutions	18	7.8M
•Antenna Research Associates, Inc.	05	4.0M
•Viotech, Inc.	31	3.4M
•Aerospace Integration Corp.	20	3.3M
•Custom Manufacturing & Engineering	04	2.8M
•Chenega Technical Products	02	2.0M
•R&D Electronics	03	1.8M
•ASRC Communications LTC	15	1.4M
•Aquila Management, Inc.	10	1.4M
CECOM Bottom Line: The WARFIGHTER		

CECOM Top Ten Large Businesses - FY2004 to Date*		
Contractor	# Actions	Total \$
•Raytheon	160	523.0M
•General Dynamics	310	417.0M
•MITRE	45	244.0M
•ITT	67	225.0M
•Boeing	14	209.0M
•Lockheed	212	173.0M
•Computer Sciences	126	170.0M
•BAE	53	139.0M
•ARINC	156	120.0M
•CACI	185	90.0M
* As of 10 May 2004		
CECOM Bottom Line: The WARFIGHTER		

CECOM Top Ten Small Businesses - FY2004 to Date*		
Contractor	# Actions	Total \$
•TAMSCO	40	78.0M
•EIOR Technologies, Inc.	101	46.0M
•Ultralife Batteries, Inc.	08	43.0M
•Signal Corp/Veridian IT Services	93	43.0M
•Datapath, Inc.	25	41.0M
•Sytex, Inc.	61	24.0M
•Choctaw Manufacturing	07	22.0M
•Engineering & Professional Services	26	20.0M
•Bren-Tronics, Inc.	04	17.0M
•FiberTek, Inc.	86	16.0M
* As of 10 May 2004		
CECOM Bottom Line: The WARFIGHTER		


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CECOM Top Ten 8(a) Businesses - FY2004 to Date*		
Contractor	# Actions	Total \$
•Choctaw Manufacturing	07	22.0M
•Janus Research Group, Inc.	15	11.0M
•Custom Manufacturing & Engineering	09	7.0M
•Chenega Technology	13	6.0M
•ASRC Communications LTC	08	1.4M
•Aerospace Integration Corp	09	1.3M
•Binary Consulting, Inc.	04	1.0M
•New World Environmental, Inc.	04	0.5M
•R&D Electronics	01	0.2M
•Aquila Management, Inc.	01	0.2M
* As of 10 May 2004		
CECOM Bottom Line: The WARFIGHTER		


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Source of Information	
• AMC Website: http://www.amc.army.mil/amc/rda-ac/ck/ck-prime.htm	
-Regulatory documents and suggested contract clause language	
-Other related documents	
•Organizational/Institutional information	
•Technical information	
•Deployment/Health/Personnel information	
•Other information (Country/Cultural, Articles)	
CECOM Bottom Line: The WARFIGHTER	


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CECOM Acquisition Center
Our Ingredients To Success



PROACTIVE
APPROACH TO
CONTRACTING
EXCELLENCE




THROUGH


PEOPLE
AUTOMATION
CONTINUOUS PROCESS IMPROVEMENT
EDUCATION

CECOM Bottom Line: The WARFIGHTER

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Contract Title



- TITLE:
- CONTRACT TYPE:
- ESTIMATED VALUE:
- KEY MILESTONES:
- TECHNICAL POC:
- ACQUISITION CONTACT:
- SOLICITATION # or RFQ #:

CECOM Bottom Line: The WARFIGHTER

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Contract Opportunities

Mr. Anthony LaPlaca



Director,
CECOM Logistics and Readiness Center

(732)532-5757

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CECOM Bottom Line: THE WARFIGHTER

Page # 1






Long Term Contract Definitions

- **Flexible Long Term Contract (FLTC):** range quantity contracts of three or more years covering the production and/or repair of one or more spare parts.
- **Indefinite Delivery Indefinite Quantity (IDIQ) Contract:** a vehicle that provides for an indefinite quantity, within stated limits, of specific supplies or services during a fixed period, with deliveries to be scheduled by placing orders with the contractor. The Government is obligated to a stated minimum. Funds other than the minimum are obligated at the time of subsequent orders.
- **Requirements Contract:** An instrument that provides for filling all purchase requirements of designated Government activities for specific supplies or services during a specified contract period with deliveries to be scheduled by placing orders with the contractor. No money is obligated at award; funds are obligated when delivery orders are written. There is no guaranteed minimum quantity.

CECOM Bottom Line: THE WARFIGHTER

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Long Term Contract Definitions (continued)

- **Blanket Purchase Agreement (BPA):** A simplified method of filling the government's anticipated repetitive needs for supplies or services by establishing charge accounts with qualified sources of supply. (FAR 13.303)
 - BPAs are designed to reduce administrative costs in accomplishing simplified acquisitions by eliminating the need for individual purchase documents.
 - Individual purchases under BPAs may not exceed the dollar limitation for simplified acquisitions, and the existence of a BPA does not justify sole source purchasing.
 - BPAs are also being used with vendors that have products or services on the Federal Supply Schedule (FAR 8.404 (b)4).

CECOM Bottom Line: THE WARFIGHTER



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LTCs Projected for FY 04-05

- LRC Omnibus III
- Main Alternators for Military Standard Generators
- Repair of AN/APN-209 LRUs
- T-611 and CN-405
- AN/VVS-2(V) Systems Buy
- Spare Parts for AN/VVS-2
- Night Vision Spare Parts
- AN/PVS-4A and AN/TVS-5 Spares
- AN/PVS-7A and AN/PVS-10 LIFs
- Mechanical Scanner
- Arctic LCSS Support System
- Light Emitting Diode Arrays
- AS-3900A and AS-3916 Antennas and Spares



CECOM Bottom Line: THE WARFIGHTER
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LRC Omnibus III

- Acquire a full range of life cycle integrated logistics, technical, engineering and administrative support services
- Services will support the LRC and any CECOM activity or organization requiring personnel, facilities, and materials.
- The goal of this program is to assure maximum mission effectiveness and system operational availability in the most cost effective manner by providing contractor personnel with skill levels and expertise to complement present organic Government capabilities


CECOM Bottom Line: THE WARFIGHTER
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LRC Omnibus III



- Objective: Award an OMNIBUS Services contract to meet current and future requirements relative to Field and Weapon System Support
- Contract Type: IDIQ, Multiple Awards, 5 years (2 year basic, 3 one-year award terms)
- Estimated Value: \$500M - \$700M
- Key Milestones: Solicitation release: August 2004
Award: December 2004
- Technical Contact: Jean Cash, 732-532-3042
- Acquisition Contact: Gail Jablonski, 732-532-4847
- Solicitation #: W15P7T-04-R-D624



CECOM Bottom Line: THE WARFIGHTER
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Main Alternators for Military Standard Generators








CECOM Bottom Line: THE WARFIGHTER

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Main Alternator for Military Standard Generators



- Military Standard Generators are utilized by many different units to provide power in support of their mission
- End Items are: MEP-701, MEP-002, MEP-003, MEP-004, MEP-005, MEP-006
- 22 secondary components
- Engines: 4 and 6 cylinder
- Fuels: Diesel: DL-1,2, and Jet Fuel: JP-8, Jet A-1
- Environmental Capability: -25 deg F (-65 deg w/winterization kit) to 125 deg F, rain, humidity, altitude, sand/dust, transportation, cold storage, salt spray, fungus

CECOM Bottom Line: THE WARFIGHTER

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Main Alternator for Military Standard Generators



□Objective: To support current and future requirements by awarding a Firm Fixed Price contract.

□Contract Type: 5 year basic contract with 5 year option

□Estimated Value: \$3M-\$9.5M

□Key Milestones: Solicitation release: September 2004
Award: November 2004

□Technical Contact: William Hogelin, 732-427-6321

□Acquisition Contact: William Frantz, 732-532-5248


□Solicitation #: DAAB07-03-R-D620

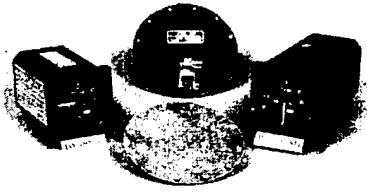
CECOM Bottom Line: THE WARFIGHTER

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Repair of AN/APN-209 LRUs






CECOM Bottom Line: THE WARFIGHTER

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Repair of AN/APN-209 LRUs




- The AN/APN-209(V) Radar Receiving Set is an absolute altimeter that provides an accurate indication of the altitude of an aircraft over all types of terrain.
- Provides safe Nap-of-Earth flying capabilities for helicopters.
- Newest models provide voice warning when the aircraft is above or below certain fixed or pilot adjustable altitudes.

CECOM Bottom Line: THE WARFIGHTER

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Repair of AN/APN-209 LRUs



□Objective: To award a contract for repair of various AN/APN-209 Line Replaceable Units (LRUs).

□Contract Type: IDIQ, 5 years, Best Value

□Estimated Value: \$210K-\$3.5M

□Key Milestones: Solicitation release: August 2004
Award: December 2004

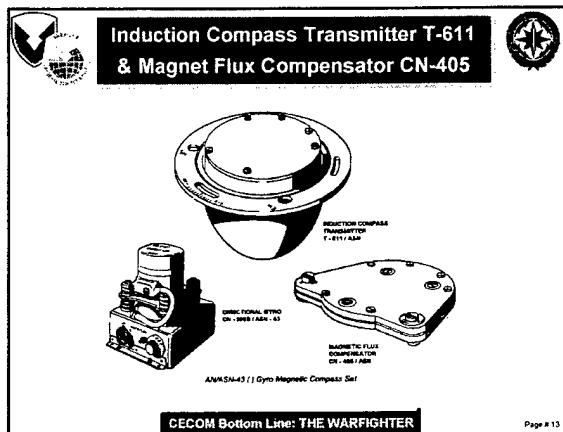
□Technical Contact: David Savitsky, 732-532-1627

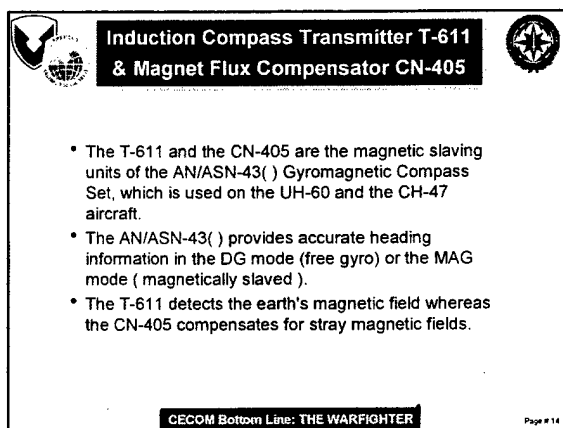
□Acquisition Contact: Thomas McConnell, 732-532-5486

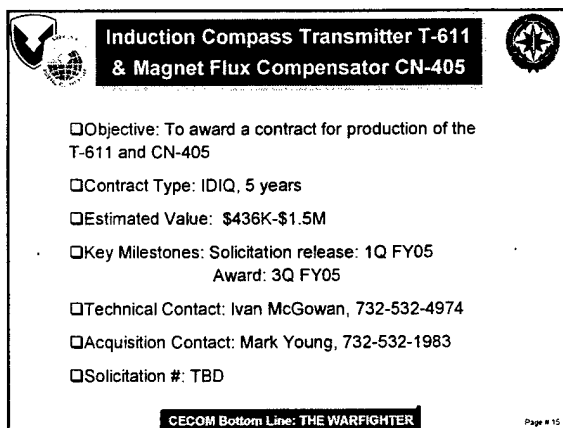
□Solicitation #: TBD


CECOM Bottom Line: THE WARFIGHTER

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AN/VVS-2(V) Systems Buy






CECOM Bottom Line: THE WARFIGHTER

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AN/VVS-2(V) Systems Buy




- The AN/VVS-2 Driver's Viewer enables a closed-hatch vehicle to be driven during night time conditions without active illumination.
- The Driver's viewer is a through-the-hull/hatch night periscope for armored vehicles.
- There are different versions: AN/VVS-2(V)1A, AN/VVS-2(V)2A, AN/VVS-2(V)3 & AN/VVS-2(V)4. The Driver's Viewers are self-contained night vision devices that improve night vision using available light from the night sky for a vehicle driver. The area viewed is presented as a green image display. It is lightweight enough to be installed from within the vehicle and can be manually rotated from between 30° to 45° depending on the vehicle in which it is to be mounted.

CECOM Bottom Line: THE WARFIGHTER

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AN/VVS-2(V) Systems Buy



❑ Objective: To award a production contract for four versions of the AN/VVS-2 Driver's Night Viewer.

❑ Contract Type: IDIQ, 5 years

❑ Estimated Value: \$3.5M-\$50M

❑ Key Milestones: Solicitation release: April 2005
Award: July 2005


❑ Technical Contact: Susan Weir, 732-427-5722

❑ Acquisition Contact: Jo-Ann Lee, 732-532-2315


❑ Solicitation #: TBD


CECOM Bottom Line: THE WARFIGHTER

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Spare Parts for the AN/VVS-2






CECOM Bottom Line: THE WARFIGHTER

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Spare Parts for the AN/VVS-2




- The AN/VVS-2 Driver's Viewer enables a closed-hatch vehicle to be driven during night time conditions without active illumination.
- The Driver's viewer is a through-the-hull/hatch night periscope for armored vehicles.
- 5 spare parts being purchased are Objective Lens Assembly, 2 different Mount Housing Assemblies, Plate Assembly, and Eyepiece Lens Assembly.

CECOM Bottom Line: THE WARFIGHTER

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Spare Parts for the AN/VVS-2



□Objective: To award a contract for production of five spare parts required for the Driver's Night Vision Viewer, AN/VVS-2.

□Contract Type: IDIQ, 5 years

□Estimated Value: \$3.65M-\$43.8M

□Key Milestones: IFB: April 2004
Award: July 2004


□Technical Contact: Susan Weir, 732-427-5722

□Acquisition Contact: Jo-Ann Lee, 732-532-2315


□Solicitation #: W15P7T-04-R-L210



CECOM Bottom Line: THE WARFIGHTER

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Night Vision Spare Parts







CECOM Bottom Line: THE WARFIGHTER

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Night Vision Spare Parts




- Gen III I² spares will sustain the U.S. Armed Force's ability to perform tasks at night with an efficiency approaching that under daylight conditions.
- The Gen III I² spares support passive devices, which amplify available light.
- 33 spare parts (including tubes) to be purchased include parts for AN/AVS-6(V)1A, (V)1B, (V)3Aviator's Night Vision Imaging Systems (ANVIS), AN/PVS-7A, B & D Night Vision Goggles, and AN/PVS-14 Monocular Night Vision Device (MNVD).
- Gen III 25mm Image Intensifier Tubes, MX-11619 and MX-11620 are also being purchased which are parts for AN/VVS-2 Drivers Night Vision Viewer, AN-PVS-4 Individual Served Weapon Night Vision Sight, and AN-TVS-5 Crew Served Weapon Night Vision Sight.

CECOM Bottom Line: THE WARFIGHTER

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Night Vision Spare Parts




- ☐ Objective: To replace IDIQ contracts which have exceeded quantity thresholds
- ☐ Contract Type: Multiple BPAs, 5 years
- ☐ Estimated Value: \$10M - \$15M
- ☐ Key Milestones: Initial BPA Awards: May-July 04
Additional call orders will be placed thru FY09
- ☐ Technical Contact: Susan Weir, 732-427-5722
- ☐ Acquisition Contact: Deborah Gilligan, 732-532-5454
- ☐ Solicitation #: W15P7T-04-R-J204

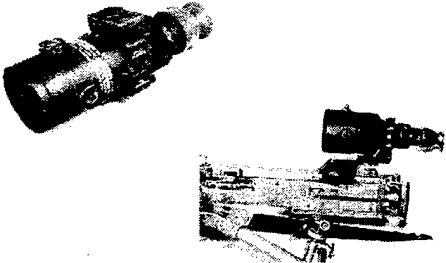
CECOM Bottom Line: THE WARFIGHTER

Page # 24




AN/PVS-4 and AN/TVS-5 Spares






CECOM Bottom Line: THE WARFIGHTER

Page # 25




AN/PVS-4 and AN/TVS-5 Spares




- The AN/PVS-4 provides passive sighting and viewing of targets using second generation image intensifier techniques.
- When mounted on individual weapons, the scope will provide the capability for delivery of accurately aimed fire during hours of darkness.
- The system is easily installed and removed from the weapon using suitably designed brackets which require no modification to the weapon.
- AN/PVS-4 is primarily designed for use with the M14, M16 and M4 Rifles, M60 and M240B Machine Gun, M249 Squad Automatic Weapon, M72A1 Rocket Launcher and M203 Grenade Launcher, M4 Carbine and M240B Machine Gun. The sight can be used in the hand-held mode for night surveillance.
- AN/PVS-4 spare parts being purchased are the Objective Lens Assembly and the Eyepiece Lens Assembly.

CECOM Bottom Line: THE WARFIGHTER

Page # 26



AN/PVS-4 and AN/TVS-5 Spares



- The AN/TVS-5 provides sighting and viewing of targets.
- When mounted on crew served weapons, the scope will provide the capability for delivery of accurately aimed fire during hours of darkness.
- AN/TVS-5 is primarily designed for use with the M2 and M60 Machine Gun and the 106mm Recoilless Rifle.
- The sight can be used in the handheld mode for night surveillance by individual soldiers, commanders and reconnaissance elements.
- Spare part being purchased is the Objective Lens Assembly.

CECOM Bottom Line: THE WARFIGHTER

Page # 27



AN/PVS-4 and AN/TVS-5 Spares



□Objective: To award a small business contract for the Eyepiece Assembly for the AN/PVS-4 and Objective Lens Assemblies for the AN/PVS-4 and AN/TVS-5.

□Contract Type: IDIQ, 5 years

□Estimated Value: \$772K-\$4.85M

□Key Milestones: Solicitation release: 1Q FY05
Award: 2Q FY05

□Technical Contact: Daniel McClendon, 732-532-6241

□Acquisition Contact: Pat Kofron, 732-427-1484

□Solicitation #: TBD

CECOM Bottom Line: THE WARFIGHTER

Page # 28



AN/PVS-7A and AN/PVS-10 Light Interference Filters (LIFs)



CECOM Bottom Line: THE WARFIGHTER

Page # 29



AN/PVS-7A and AN/PVS-10 Light Interference Filters (LIFs)



- The AN/PVS-7 is a helmet - mounted image intensification system used by individual soldiers for night operations including such tasks as driving, walking, first-aid, map reading and maintenance.
- The system is designed for use in conjunction with rifle mounted aiming lights.
- Technology: Passive, Third Generation Image Intensification (18mm Image Intensifier Tube).

CECOM Bottom Line: THE WARFIGHTER

Page # 30



AN/PVS-7A and AN/PVS-10 Light Interference Filters (LIFs)



- The AN/PVS-10 is an integrated day/night sight for the M24 sniper rifle that provides the sniper with the capability to acquire and engage targets under both day and night conditions.
- For nighttime operation, the system utilizes third generation image intensification technology.
- The system mounts to the existing rail of the M24 rifle and uses the standard mil-dot reticle.
- The LIF protects the user from eye injury and protects the image intensifier from damage from battlefield lasers.

CECOM Bottom Line: THE WARFIGHTER

Page # 31



AN/PVS-7A and AN/PVS-10 Light Interference Filters (LIFs)



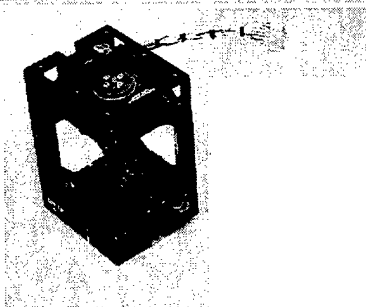
- ☐ Objective: To award a contract for production of two spare parts required for the AN/PVS-7A Night Vision Goggle & AN/PVS-10 Snipers Night Sight.
- ☐ Contract Type: IDIQ, 5 years
- ☐ Estimated Value: \$1M-\$3.7M
- ☐ Key Milestones: Solicitation release: 1Q FY05
Award: 2Q FY05
- ☐ Technical Contact: Susan Weir, 732-427-5772
- ☐ Acquisition Contact: Pat Kofron, 732-427-1484
- ☐ Solicitation #: TBD

CECOM Bottom Line: THE WARFIGHTER

Page # 32





Mechanical Scanner



CECOM Bottom Line: THE WARFIGHTER

Page # 33






Mechanical Scanner

- The Mechanical Scanner is a subcomponent to 1st Generation Forward Looking Infrared Systems (FLIR).
- Utilizes a two-sided mirror to scan Infrared energy on one side and visible light on the opposite. There are several motors utilized to perform the scanning function as well as several transducers to assure proper interlacing of the images.
- There are several different versions/configurations of the scanner dedicated to various end item/platform requirements.
- Must be fully operational in ambient temperatures of +71C and -54C.
- Must be able to withstand mechanical shock of 100G for a duration of 11 msec.

CECOM Bottom Line: THE WARFIGHTER

Page # 34






Mechanical Scanner

- Objective: Maintain source of supply for Mechanical Scanners to meet Army requirements
- Contract Type: IDIQ, 5 years, Best Value
- Estimated Value: \$10M-\$20M
- Key Milestones: Solicitation release: 1Q FY05
Award: 2Q FY05
- Technical Contact: John Chiesa, 732-427-5804
- Acquisition Contact: Pat Kofron, 732-427-1484
- Solicitation #: TBD

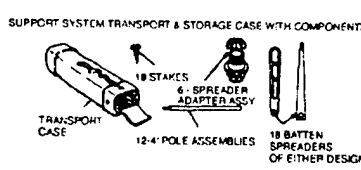
CECOM Bottom Line: THE WARFIGHTER

Page # 35

Arctic LCSS Support System

SUPPORT SYSTEM TRANSPORT & STORAGE CASE WITH COMPONENTS



TRANSPORT CASE 12-4' POLE ASSEMBLIES 18 STAKES 6 SPREADER ADAPTER ASSY 18 BATTEN SPREADERS OF EITHER DESIGN

CECOM Bottom Line: THE WARFIGHTER

Page # 36



Arctic LCSS Support System



- Lightweight Camouflage Screen System (LCSS) is a legacy system, to be replaced by Arctic ULCANS in the FY 05 – 06 timeframe.
- Provides concealment from Visual, Near IR/Thermal and Radar sensors.
- The support system, snow (NSN:1080-01-256-0678) is white in color and is used with the snow, radar scattering or radar, transparent screen systems.
- The support system consists of:
 - Twelve each four foot aluminum (Type 1) pole sections.
 - Eighteen each aluminum stakes.
 - Eighteen each batten spreaders, which support the screens.
 - A locking device called a spreader adapter assembly.
 - A repair kit is furnished containing enough material for users to perform repairs on the screen.
 - A carrying case for the support system.

CECOM Bottom Line: THE WARFIGHTER

Page # 37



Arctic LCSS Support System



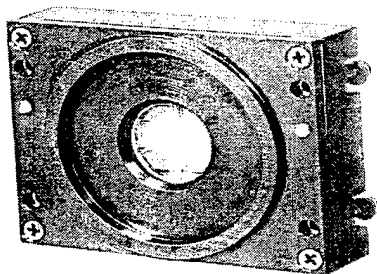
- Objective: To fill requirements for Arctic LCSS Support Systems
- Contract Type: IDIQ, 5 years, Best Value
- Estimated Value: \$1.9M-\$2.1M
- Key Milestones: Solicitation release: 4Q FY04
Award: 1Q FY05
- Technical Contact: Troy Hayes, 732-427-5420
- Acquisition Contact: Pat Kofron, 732-427-1484
- Solicitation #: TBD

CECOM Bottom Line: THE WARFIGHTER

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Light Emitting Diode Arrays




CECOM Bottom Line: THE WARFIGHTER

Page # 39




Light Emitting Diode Arrays




- The Light Emitting Diode Array is a subcomponent to the 1st Generation Forward Looking Infrared Systems (FLIR)
- Light Emitting Diode Arrays (LED) perform the function of Electrical to Optical conversion for use in FLIR Systems
- LEDs have several configurations dependent upon end item/platform requirements. There are 60 element (SU-127), 120 element (SU-122) and 180 element (SU-96) configurations
- LEDs must be fully operational in ambient temperatures of +71C and -54C
- LEDs must be able to withstand mechanical shock of 100G for a duration of 11 msec

CECOM Bottom Line: THE WARFIGHTER

Page # 42




Light Emitting Diode Arrays




- ☐ Objective: Maintain Source of supply for Light Emitting Diode Arrays to meet Army requirements
- ☐ Contract Type: IDIQ, 5 years
- ☐ Estimated Value: \$5M-\$15M
- ☐ Key Milestones: Solicitation release: October 2004
Award: February 2005
- ☐ Technical Contact: John Chiesa, 732-427-5804
- ☐ Acquisition Contact: Pat Kofron, 732-427-1484
- ☐ Solicitation #: TBD

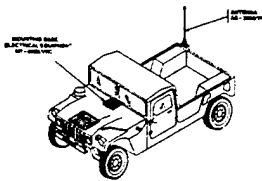
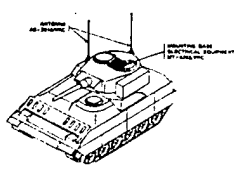
CECOM Bottom Line: THE WARFIGHTER

Page # 41




AS-3900A and AS-3916 Antennas and Spares







CECOM Bottom Line: THE WARFIGHTER

Page # 43




AS-3900A and AS-3916
Antennas and Spares




	AS-3900A	AS-3916
Description	9' bi-pole fiberglass whip antenna consisting of upper and lower element and base subassembly	6' mono pole steel whip attached to a base subassembly
Used with	SINGARS Ground Radios in wheeled vehicles	SINGARS Radios in tracked vehicles
Frequency	30-88 MHz range; frequency hopping capability	30-88 MHz
Range	Approx 22 miles	Approx 17 miles
Components/NSNs	Antenna 5985-01-353-4943 Base 5985-01-353-8696 Upper element 5985-01-306-4622 Lower element 5985-01-306-8110	Antenna 5985-01-353-4943 Base 5985-01-376-8012

CECOM Bottom Line: THE WARFIGHTER
Page # 43



AS-3900A and AS-3916
Antennas and Spares



☐ Objective: To replace expiring contracts for the antennas and associated spare parts.

☐ Contract Type: IDIQ, 5 years, Best Value

☐ Estimated Value: \$30M-\$50M

☐ Key Milestones: Solicitation release: July 2004
Award: November 2004

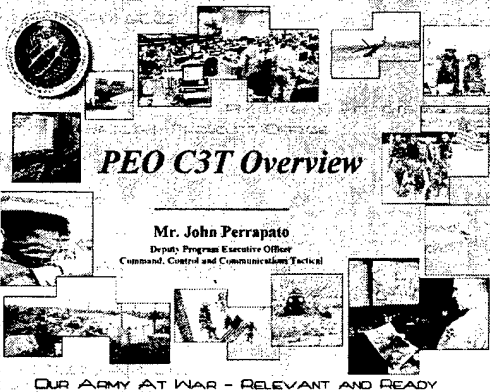
☐ Technical Contact: Man Bun Lau, 732-532-9177

☐ Acquisition Contact: Michael Neeb, 732-532-5512

☐ Solicitation #: W15P7T-04-R-G634

CECOM Bottom Line: THE WARFIGHTER
Page # 44

PEO C3T



PEO C3T Overview

Mr. John Perrapato
Deputy Program Executive Officer
Command, Control and Communications Tactical

OUR ARMY AT WAR - RELEVANT AND READY

PEO C3T

Mission Statement

To rapidly develop, field, and support leading edge, survivable, secure and interoperable tactical, theater, and strategic command and control and communications systems through an iterative, spiral development process that results in the right systems, at the right time and at the best value to the warfighter.

"System Architect for Tactical Army"

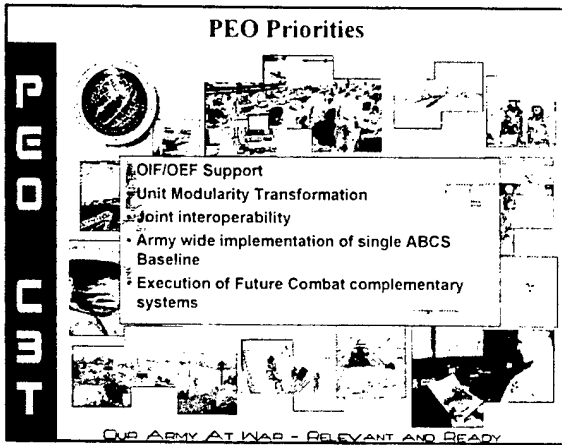
OUR ARMY AT WAR - RELEVANT AND READY

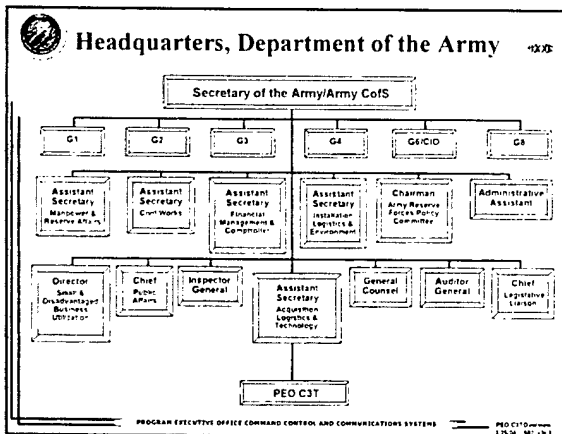
PEO C3T

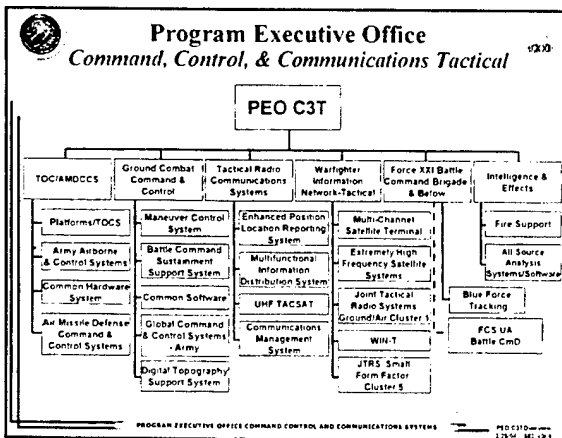
Vision Statement

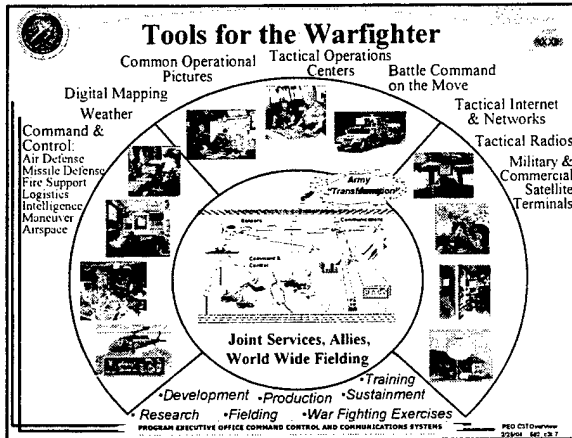
To be the premier provider of integrated C3 solutions to the Joint Warfighter while supporting transformation of the collective force. PEO C3T has evolved as the "C3 Expert" and is dedicated to providing information superiority to the Warfighter and Homeland Defense. We provide the right system, at the right time and at the best value.

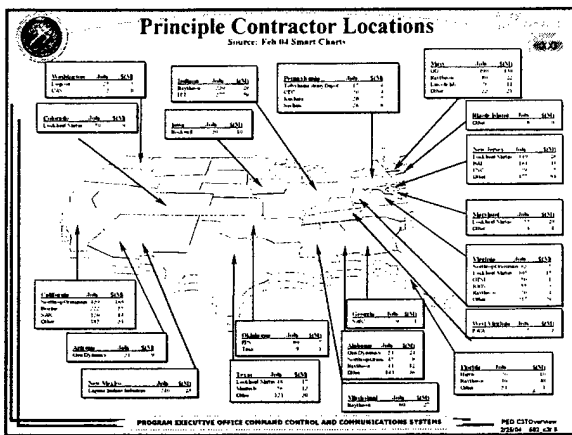
OUR ARMY AT WAR - RELEVANT AND READY

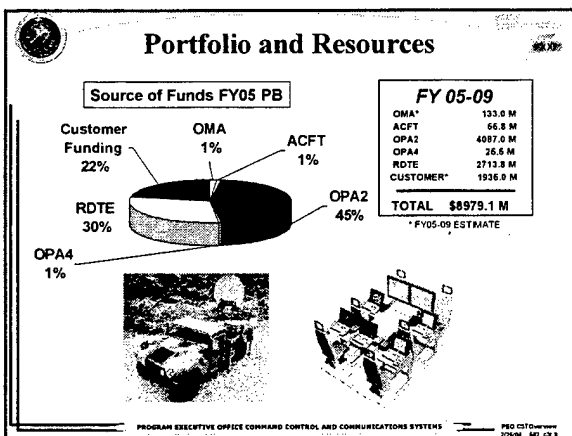













Warfighter Information Network-Tactical
WIN-T

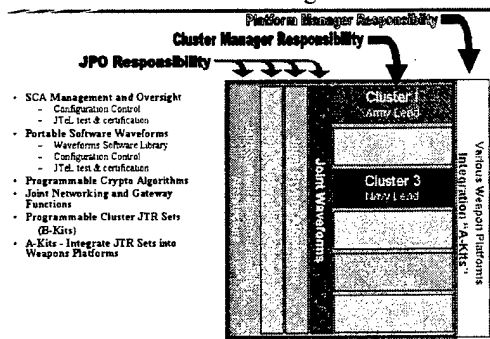


Advance Planning Brief for Industry
Joint Tactical Radio System; Cluster 1
Mr. Graciano Nikolich, JTRS C1 Systems Engineer
732-427-3989

Agenda

- JTRS C1 Program Overview
- Program Schedule
- Program Requirements
- Technical Challenges
- Summary
- Take-Aways

JTRS Program



JPO Responsibility

- SCA Management and Oversight
 - Configuration Control
 - JTR test & certification
- Portable Software Waveforms
 - Waveforms Software Library
 - Configuration Control
 - JTR test & certification
- Programmable Crypto Algorithms
- Joint Networking and Gateway Functions
- Programmable Cluster JTR Sets (B-Kits)
- A-Kit - Integrate JTR Sets into Weapons Platforms

Cluster Manager Responsibility

Platform Manager Responsibility

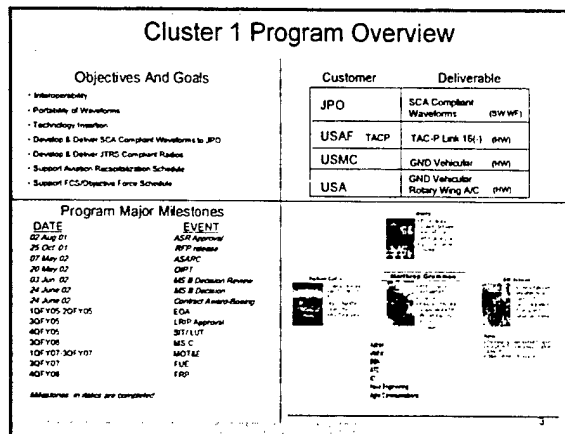
Cluster 1 Army Lead

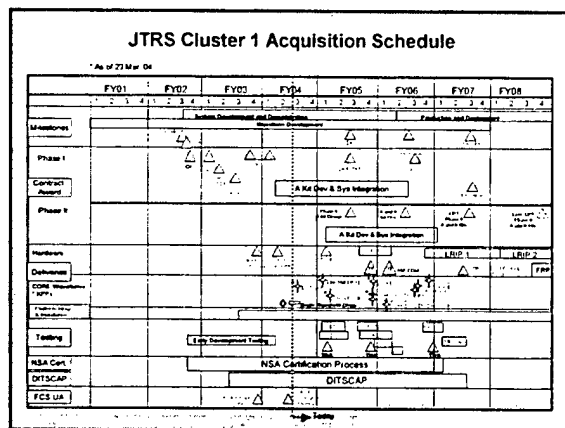
Cluster 3 Army Lead

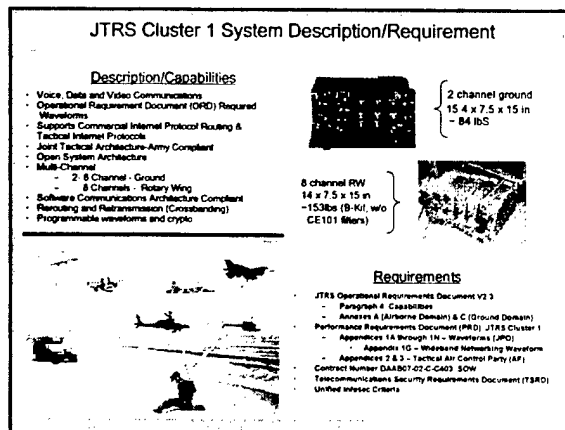
Joint Waveforms

Integration "A-Kits"

Various Weapon Platforms





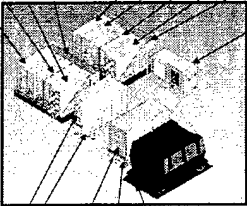


JTRS C1 HW																							
RF												Structural											
Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground
TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP
Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna
1. JTRS C1 HW	2. JTRS C1 HW	3. JTRS C1 HW	4. JTRS C1 HW	5. JTRS C1 HW	6. JTRS C1 HW	7. JTRS C1 HW	8. JTRS C1 HW	9. JTRS C1 HW	10. JTRS C1 HW	11. JTRS C1 HW	12. JTRS C1 HW	13. JTRS C1 HW	14. JTRS C1 HW	15. JTRS C1 HW	16. JTRS C1 HW	17. JTRS C1 HW	18. JTRS C1 HW	19. JTRS C1 HW	20. JTRS C1 HW	21. JTRS C1 HW	22. JTRS C1 HW	23. JTRS C1 HW	24. JTRS C1 HW
Platform Interface												System Module Interface											
Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground	Ground
TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP	TACP
Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna	Antenna
1. JTRS C1 HW	2. JTRS C1 HW	3. JTRS C1 HW	4. JTRS C1 HW	5. JTRS C1 HW	6. JTRS C1 HW	7. JTRS C1 HW	8. JTRS C1 HW	9. JTRS C1 HW	10. JTRS C1 HW	11. JTRS C1 HW	12. JTRS C1 HW	13. JTRS C1 HW	14. JTRS C1 HW	15. JTRS C1 HW	16. JTRS C1 HW	17. JTRS C1 HW	18. JTRS C1 HW	19. JTRS C1 HW	20. JTRS C1 HW	21. JTRS C1 HW	22. JTRS C1 HW	23. JTRS C1 HW	24. JTRS C1 HW

P2 - LRUs – (IAV CV 5 Channel)

6 4 3 2

6 5 4 3 2



1

6 7

10 11 12

No	Eqpt	Qty
1	LEOS	1
2	QVA	2
3	TR	2
4	UHF	5
5	VISPA	1
6	VISPA	3
7	Dual Mount	1
8	Light Mount	1
9	HCC-VISPA	1
10	HPFA	1
11	HPFA + HDS* (Laser mount)	1
12	HP Catcher w/ mount	1
13	OTIS	1
14	OTIS	1
15	OTIS	1
16	ISATCOM AU	1
17	CV CMP	1

P2 - Antennas – (IAV CV 5 Channel)

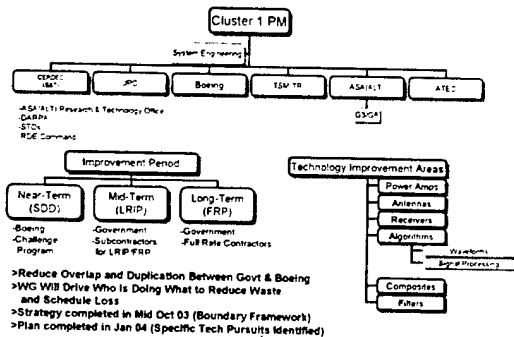
The diagram shows a rectangular area representing the antenna layout. Callout 1 points to a vertical line on the right side. Callout 2 points to a vertical line on the left side. Callout 3 points to a vertical line on the right side. Callout 4 points to a vertical line on the left side. Callout 5 points to a vertical line on the left side.

No.		Qty.	Height
1	HPA	1	12"
2	GPS	1	2"
3	HPA	2	100"
4	ISATCOM	1	15-32"
5	HPA	1	15-32"
6	HPA	1	15-32"
7	HPA	1	15-32"
8	Guard Antenna	1	15-32"

Technical Challenges

- Power Dissipation
- Requirements that significantly impacted Size/Weight/Power (SWaP)
 - Flexibility to run any waveform in any channel
 - Multiple Single Level Security (MSLS)
 - Software Communications Architecture (SCA)
 - Universal wideband amplifiers
- Industrial grade components require more cooling
- CE-101 not waived for Rotary Wing JTRS added 60 lbs
- Wide band antenna performance

Technology Development Strategy Working Group



Technology Development Strategy (TDS)

- Seize earliest opportunities for mature, improved, affordable and reliable WNW supporting PA, Antenna and Filter technology insertion to Cluster 1 in all Phases while simultaneously maintaining the current program progress with recognized technology shortfalls
- Demonstrate incremental improvement by using phased approach to mitigate and avoid unnecessary programmatic risks and cost
- Leverage and influence DoD and Army R&D programs such as STOs and ATDs
STO CER-05 Radio Enabling Technologies & Networking Applications (RETNIA)
- Assess Technology and affordability through BAAs and SBRs

Initiated Efforts via CERDEC S&TCD Broad Agency Announcements

- Mid-High Power amplifier (MHPA): BAA Solicitation DAAB07-03-R-P650, Topic # S0404 "Software Defined Radio"
- Antenna for Mid-High Band: BAA Solicitation DAAB07-03-R-P650, Topic # S0405 "Antennas for Tactical and Strategic Military Communications"
- Schedule: Awards Made Mar-April 04
- Continue pursuit of additional technologies

Take-Aways

- TDS supports BAAs
- BAAs must provide usable products
- CERDEC developing a STO to support TDS
- Strong focus on third party development
 - Emphasis on expansion of the industrial base
- Strong focus on tech insertion
- Two points of entry
 - Cluster 1 TDS Working Group (PM JTRS C1 lead)
 - RETNA STO (CERDEC lead)

US Army Research, Development and Engineering Command

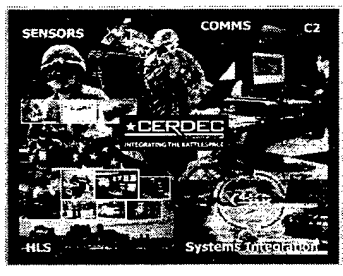
Communications-Electronics Research, Development and Engineering Center (CERDEC)

Robert Zanzalari
 Acting Associate Technical Director
 732-427-3351
 Robert.Zanzalari@us.army.mil

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Communications-Electronics Research, Development and Engineering Center



Mission
 To develop and integrate Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) Technologies that enable Information Dominance and Decisive Lethality for the Networked Warfighter

Vision
 To be the DoD leader in C4ISR solutions

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

CERDEC

OFFICE OF THE DIRECTOR
 Director – Gary Martin (Acting)
 Associate Director for Technology – Bob Zanzalari (Acting)
 Military Deputy Director / CIO – COL Angel Colon
 Chief Scientist – Dr. Art Ballato
 Executive Officer – Roseann Elston


Homeland Security Special Projects Office (HLS SPO)
 Tony Anania
 Director

COCOM Interoperability Program Office (CIPO)
 John Sillato
 Director (A)

Directorates

Command & Control Darrell Davis (A) <ul style="list-style-type: none"> Advanced C2 Systems Integration of C2 Inter. & Link Databases Planning & Decision Making Tools Battlefield Visualization Navigation Power Generation & Management 	Space & Terrestrial Comm. Gary Blohm <ul style="list-style-type: none"> Tactical On-The-Move Communications Information Security Reachback/Range Extension (SATCOM & UAV) Solder Communications Network Management 	Night Vision Electronic Sensors A. Fenner Milton <ul style="list-style-type: none"> Thermal Imaging Image Intensification/Charge Coupled Devices Sensor Fusion Aided Target Recognition Laser/Laser Radar Countermeasures 	Intelligence & Information Warfare Anthony Lisuzzo <ul style="list-style-type: none"> Intelligence Data Fusion/Dissimination Signal Intelligence & Electronic Support Information Warfare Tactical UAV Recon/Target Survivability Equipment 	Software Engineering Mike Lombardi (A) <ul style="list-style-type: none"> Engineering Support and Services for PCSS and PRSS Software Development
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CERDEC Technology to the Warfighter Quicker **RDE**



US Army Research, Development and Engineering Command

Army S&T Program

FOR THE ARMY, THE ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND (RD&EC) IS THE ARMY'S LEADING AGENT FOR THE ACQUISITION, DEVELOPMENT, AND TESTING OF NEW TECHNOLOGIES AND SYSTEMS.

SAR, TS
MEMORANDUM FOR

SUBJECT: Guidance for Developing Fiscal Year 2005 Science and Technology Objectives (STCOs), Advanced Technology Demonstrators, and Manufacturing Technology Objectives (MTOs)

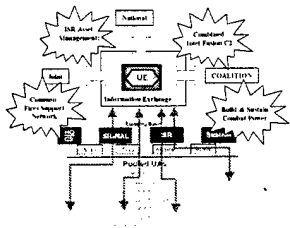
America's Army is at war

The primary goal of the Army S&T program is to accelerate development of the key technologies that will enable transformational capabilities in the Future Force. However, we must also be alert for opportunities to field technology that enhances the capabilities of the current force in the short term. There are specific priorities that the Acquisition Community must use to focus our efforts. First among these is the current war effort. Second is the set of the Army's 16 Focus Areas. S&T is making impacts in many of these areas and we must continue to do so. The Strategic Planning Guidance and Joint Programming Guidance defined by the Department of Defense set our long-range goals. This is where S&T should truly lead the way. The results of our efforts will be the catalyst that enables transformation of today's Army into the Future Force. These priorities must be the bedrock upon which we build the FY05 and all future S&T portfolios. Every STO we embark upon must stem from these priorities.

replacements and
upgrading Carrier

US Army Research, Development and Engineering Command

Battle Command Construct



Purpose: This Chunk Will Provide a Seamless On-the-move Information Network From the Strategic to the Tactical Level and Is the Critical Component to Seeing, Understanding and Acting First.

Products: Communications, Intelligent Agents and Decision Aids for the One Battle Command System That Enable Commanders to Plan and Execute Their Mission.

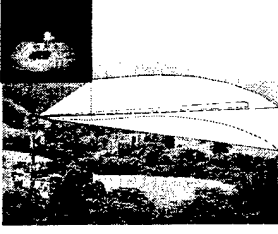
Payoff: Integration of UA/UE/Joint/Coalition/National Information Systems, Providing Right Information at the Right Time and Right Place to Enhance Objective Force Survivability and Effectiveness.

Value: \$29.5 (FY04)/\$141M (FY05-09)

ACERDEC Technology to the Warfighter Quicker RDE

US Army Research, Development and Engineering Command

Beyond Line of Sight Lethality



Purpose: Technologies in This Chunk Will Provide the Ability to Destroy the Enemy at Longer Ranges, With Greater Precision.

Products: Target Acquisition Sensor System Demonstrating 2nd Gen IR Single Color, Shape Based AITD/R Algorithms and SWIR in a Ground to Ground Environment.

Payoff: Provides Combat Overmatch Capability to Identify Threat Targets Upon Detection Enhancing Freedom of Maneuver/Delay Enemy Freedom of Maneuver and Enhances Sensor to Shooter Linkages and Supports Layered Sensor Concept.

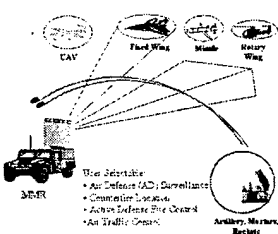
STO(s) Supporting: IIIJS.2003.05, IV.VP.2004.04

Value: \$14.6 (FY04) \$15.5M (FY05-07)

ACERDEC Technology to the Warfighter Quicker RDE

US Army Research, Development and Engineering Command

Non-Line of Sight Lethality



Purpose: Technologies in This Chunk Will Provide A Single System Capable of Multiple Ground-based Radar Missions (Air Defense, Field Artillery/Mortars/Rockets Weapon Location, Fire Control and Air Traffic Control).

Products: Fully Tested Multi-mission Radar System Demonstrator And Man-portable Short Range Counter Mortar Radar (LCMR)

Payoff: Support Early Entry Forces With Single, Rapidly Deployable Sensor; Address Air and Missile Defense, ATC and Counterfire Requirements Simultaneously Thus Improving Force Lethality and Situational Awareness; Reduced Logistic Support by a Single Radar That Replaces Four Different Radar Systems


STO(s) Supporting: IIIJS.2001.01

Value: \$4.9M (FY04)/\$11.7M (FY05-06)

ACERDEC Technology to the Warfighter Quicker RDE

US Army Research, Development and Engineering Command

Maneuver Support



Purpose: Provide the Ability to Detect, Neutralize and Digitally Disseminate Mine and Minefield Locations

Products: Detection Sensors, Software Algorithms, and Neutralization Techniques to Support Rate of Advance and Maneuverability Requirements on and Off-road

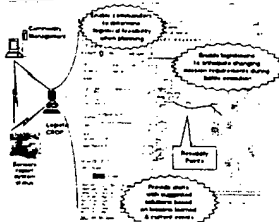
Payoff: Increased Vehicle and Soldier Survivability Provides Increases in Rates-of-advance for Route Clearance and Minefield Reconnaissance Missions Provides Bolt-on Operations Without Overpass Avoiding the Need for Specialized Vehicles

Value: \$25.2M (FY04)/\$90.3M (FY05-09)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Maneuver Sustainment



Purpose: This Chunk Will Provide Means to Manage the Transportation and Sustainment of Personnel and Materiel in Order to Support High OPTEMPO and Ready to Fight Requirements.

Products: Planning Tools for COA Analysis of Classes II, V, Maintenance, and Medical Service; Software Intelligent Agents for Execution Monitoring and Counteraction Recommendation; Sustainment Focused Computer Based Training Tools.

Payoff: Sustainment Analysis and Planning Integrated and Concurrent With Maneuver COA Generation.

STO(s) Supporting: IV.LG.2003.01

Value: \$13.4M (FY05-06)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Mounted/Dismounted Maneuver



Purpose: This Chunk Will Provide the Objective Force Unsurpassed Mobility Over Operational Distances As an Integrated Combined Arms Unit. This Capability is Necessary if Objective Force Commanders Are to Maneuver Where and When They Desire, Without Interruption or Delay in Intent.

Products: Multi-spectral AITD and MWIR AITD/AIR System for Evaluation in a Field Demo; Demonstration and Validation of Both Operational and Training Pos/Nav & Tracking Breadboards in a MOUT Environment

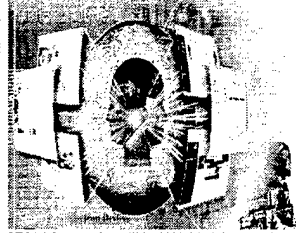
Payoff: Superior Tactical Maneuverability in All Terrain and Weather As a Dismounted and Mounted Combined Arms Force.

Value: \$70.3M (FY04)/\$256.8M (FY05-09)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Sensor Fusion



Purpose: Provide Multi-spectral, Multi-discipline Sensors and Fusion Tools Required to Understand the Enemy Situation and the Battlespace Environment As Required for the Unit of Action.

Products: Software for Knowledge Generation and Explanation to Answer Warfighting CCIR's in a Timely Manner; Ontology Based Information Agents for Objective Force Systems (FCS, DCGS-A, C2 Systems); Battle Damage Assessment Agents, and User-directed Knowledge Discovery Tools

Payoff: The Ability to Make Quick War-fighting Decisions After Having Fully Leveraged the Huge Volumes of Information That the UoA Will Receive.


STO(s) Supporting: III.IS.2002.01, III.IS.2003.06, III.BA.2003.01

Value: \$12.6M (FY04) /\$117M (FY05-09)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Survivability



Purpose: Provide the Warfighter Affordable Aircraft and Ground Electronic Sensors and Systems Which Enhance Survivability and Lethality Through the Development of Technology to Avoid Acquisition and Avoid Being Hit.

Products: Warning Sensors to Cue EW and APS Countermeasure Systems; Electronic Countermeasure Systems and Techniques to Neutralize Smart Munitions; Detection, Location, Identification, Jamming and Deception of Enemy Battlefield Surveillance and Targeting Radar Systems.

Payoff: Survivability and Information Dominance Through Degradation, Denial, and Deception of Enemy Sensors and Remotely Controlled Weapon Systems

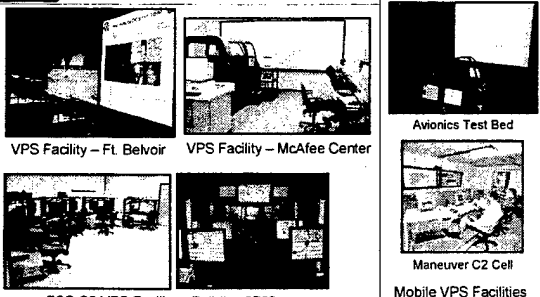
STO(s) Supporting: IV.EW.2000.01, III.IS.2003.01, IV.SN.2003.01

Value: \$10.9M (FY04) /\$5.3M (FY05-09)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Virtual Prototyping



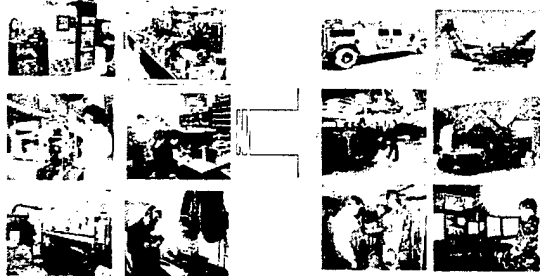
VPS Facility – Ft. Belvoir VPS Facility – McAfee Center Avionics Test Bed

FCS C2 VPS Facility – Building 2705 Maneuver C2 Cell Mobile VPS Facilities

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

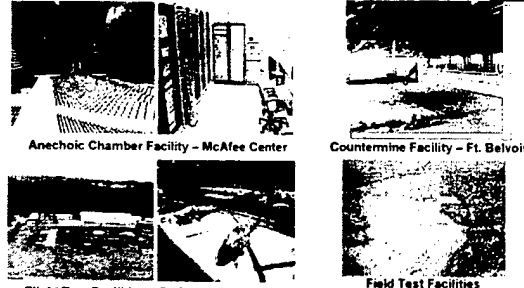
Rapid Prototyping Facilities



CERDEC Technology to the Warfighter Quicker RDE

US Army Research, Development and Engineering Command

T&E Assets and Facilities



Anechoic Chamber Facility – McAfee Center
Countermine Facility – Ft. Belvoir
Flight Test Facilities – Ft. Belvoir/Lakehurst
Field Test Facilities – Ft. Belvoir/Lakehurst/Ft. Dix


CERDEC Technology to the Warfighter Quicker RDE

US Army Research, Development and Engineering Command


S&T Near Term Investments

- Over the next POM CERDEC Will Deliver Technology to support Networking, Command and Control and Sensors
 - Networking
 - Small Unit Communications
 - Advanced Antennas
 - Tactical Wireless Network Assurance
 - Mobile Networking
 - Data Links
 - Bandwidth Management
 - Command and Control
 - Maneuver C2 Tools and Visualization Systems
 - Knowledge Management
 - Intelligent Agent Development and Application

CERDEC Technology to the Warfighter Quicker RDE





US Army Research, Development and Engineering Command



S&T Near Term Investments

- Sensors**
 - Second Generation Unattended Ground Sensors
 - Distributed Aided Target Recognition
 - Advanced Soldier Vision Systems
 - Low Cost, Un-cooled Sensors
 - Thru Wall Sensing
 - Multi-mission Radar
 - Long Range SAR/MTI
 - Digital RF Tags
- Countermeasures**
 - Countermeasures and Counter IED


Technology to the Warfighter Quicker




US Army Research, Development and Engineering Command



CERDEC Contract Opportunities

- Specific Business Area Opportunities**
 - Space & Terrestrial Communications Dir.
 - Command & Control Dir.
 - Night Vision & Electronics Sensor Dir.
 - Intelligence & Information Warfare Dir.
- CERDEC Wide Opportunity**
 - Small Business Innovation Research


Technology to the Warfighter Quicker




US Army Research, Development and Engineering Command



Wearable Antenna Integration

DEFINITION

- Apply wearable antenna prototypes to useable ensembles for dismounted soldier operational scenarios.
- Existing prototypes to integrate into existing and/or projected soldier ensembles.
- Characterization of the antenna transmit/ receive properties after integration efforts.
- Testing to transmit and receive voice, data and video under operational scenarios may be included to determine actual properties (e.g., gain, bandwidth, etc.)

TECHNICAL SPECIFICATIONS

- Frequency Range: 30-2500 MHz
- Inputs: RF and JTRS Control Input
- "Soldier Radio" compatible
- RF Input Power: ≤5 Watts
- Form Factor: Various/Scorpion Ensemble

CONTRACT OPPORTUNITY

OBJECTIVE: Integrate antenna prototypes into soldier ensemble

CONTRACT TYPE: Cost Plus

ESTIMATED VALUE: \$300k-700k

KEY MILESTONES: BAA/RFP Released: 4Q FY04
Contract Award: 2Q FY05
Delivery: 2Q FY07

TECHNICAL CONTACT: Dr. John M. Tobias (732) 427-0221
ACQUISITION CONTACT: Kristina Weaver, (732) 427-1381
SOLICITATION #: BAA DAA807-03-R-P550, topic #S0405

**TECHNICAL CHALLENGES
NEEDING MITIGATION**

- Interference from ensembles
- Characterization difficulties
- Variable platform (soldier)
- Multiple antennas


Technology to the Warfighter Quicker


US Army Research, Development and Engineering Command

Affordable SDR Components for JTRS Cluster 5

Embedded JTRS Cluster 5 SFF for FCS UA Network Communications

Common SDR Core Transceiver

Modular
Scalable
Reusable

Improved mobility
Seamless network communications
Enhanced lethality sensor-to-shooter

Technology to the Warfighter Quicker

FCS UA/JTRS Technology Maturity Assessment Cluster 5 Risk Mitigation

Payoffs

- Affordable Life Cycle Cost**
 - Unit production
 - Operating & support
- Operational Readiness**
 - Multi-channel performance
 - Embedded form factor/weight
 - Energy efficiency
 - Environmental

RDE

US Army Research, Development and Engineering Command

Affordable SDR Components for JTRS Cluster 5

DEFINITION

- The SDR MTG is essentially risk mitigation for Joint Tactical Radio System (JTRS) Cluster 5 to ensure that the Small Form Fit (SFF) configurations meet Size, Weight and Power (SWAP) and Unit Production Cost (UPC) requirements.
- SDR MTG is seeking to develop:
 - Low cost common SDR core transceiver prototypes (RFPE, BB processor) for JTRS reuse across UA (MRL 7)
 - Economical manufacturing qualification test methods and production processes, M&S and laboratory validated (MRL 7)

CONTRACT OPPORTUNITY

OBJECTIVE: Develop low cost common SDR core transceiver prototypes (RFPE, BB processor) for JTRS reuse across FCS UA. The design should employ economical manufacturing qualification test methods and production processes validated using modeling & simulation and laboratory testing.

CONTRACT TYPE: Cost Plus - L&A

ESTIMATED VALUE: FY05-09 Multiple 1 year contracts from \$500K - \$2 M

KEY MILESTONES:

BAARFP Released:	4Q FY04
Contract Award:	1Q FY05
Prototypes Delivered:	Various Intervals

TECHNICAL CONTACT: Lisa Pugh (722) 477-4644
ACQUISITION CONTACT: Kristina Weaver (722) 427-1381
SOLICITATION #: SAA D4AB07-02-R-2526, topics 550402

TECHNICAL SPECIFICATIONS

- RF Front End**
 - 2-2500 MHz frequency range
 - Expandable from one to three channels
 - Fast tuning synthesizer (25-2700 MHz)
 - 2-400W Output External PA (form factor dependent)
 - Modular design for maximum platform reuse
- Baseband Processor**
 - Low power computing
 - Scalable to multi-channel configurations
 - Demonstrate key CSP manufacturing test processes

TECHNICAL CHALLENGES

NEEDING MITIGATION

- Diametrically opposed requirements of broadband operation versus reduced SWAP and lower UPC
- Thermal management in Small Form Fit
- Increased power efficiency for both Baseband processor and RF Front End
- Application of commercial assembly and test techniques while maintaining military needs for product quality and reliability

Technology to the Warfighter Quicker

RDE

US Army Research, Development and Engineering Command

MARCON-i

MARCON-i STG-608

Multi-Channel, Multi-Mode, Multi-User, Multi-Service, Multi-Platform, Multi-Function, Multi-Task, Multi-User, Multi-Service, Multi-Platform, Multi-Function, Multi-Task

Any Jam and Low Probability of Intercept Networked Communications

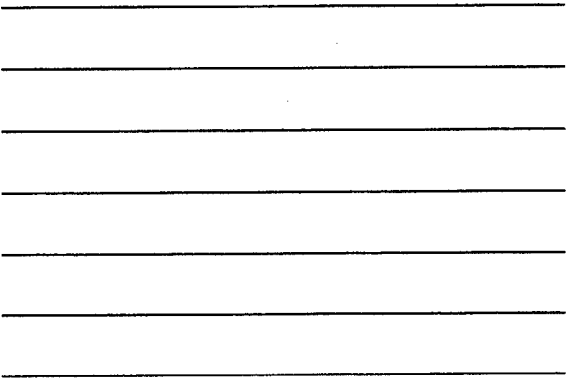
Enhanced Network Capacity for increased Bandwidth Availability

Multi-Dimensional Assured Access to Terrestrial and Airborne Networking

Technology to the Warfighter Quicker

RDE

[illegible][illegible]

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PEO EIS Contract Opportunities

Art Reiff
Deputy Project Manager
Defense Communications and Army Transmission Systems (DCATS)
Arthur.Reiff@us.army.mil
(732)532-5517, DSN 992-5517
DD MMM 2004



PEO EIS

Outline

- PEO EIS Overview
- PM DCATS Mission
- Contract Opportunities
 - Multiband Enterprise Terminal
 - DoD Standard SATCOM Internet Protocol (IP) Modem

PEO EIS

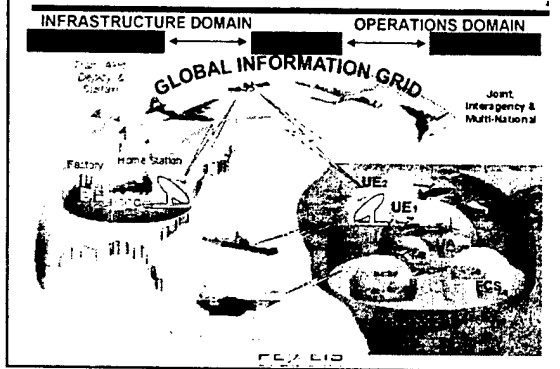
We are PEO Enterprise Information Systems

- Provide DoD, the Army and other federal agencies with network-centric, knowledge-based business and combat service support solutions.
- Implement Army's Enterprise infrastructure & business systems which support Combatant Commanders
- Provide Automated Systems which:
 - Assist with the accession and training of our Soldiers,
 - Track the Army's personnel
 - Provide and maintain the Warfighter's equipment
 - Plan the movement of their supplies and assets.

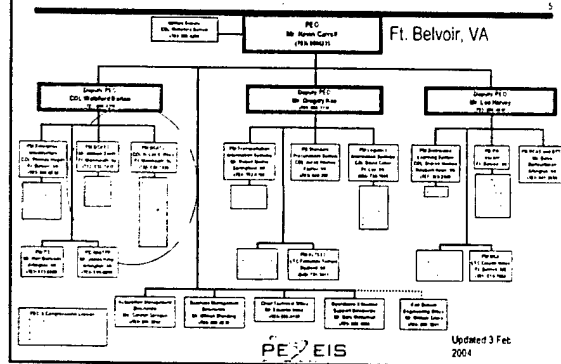


PEO EIS

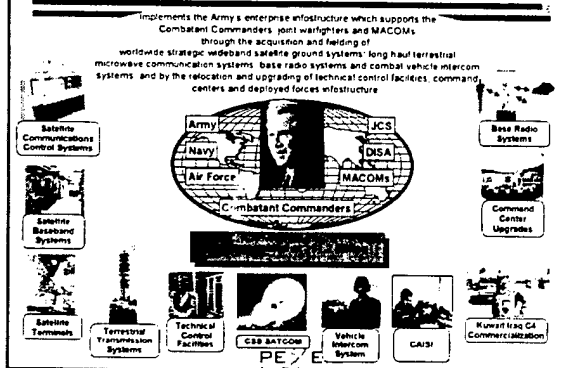
PEO EIS Mission



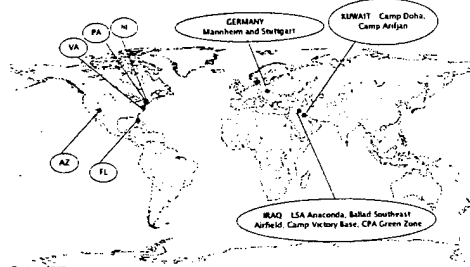
PEO EIS Organization Chart



Project Mgr. Defense Communications and Army Transmission Systems (PM DCATS)



PM DCATS Program Offices



Core Employees - 76 Civilians, 9 Military
PM DCATS Team (Core, Matrix, Contractor) - 362

PE EIS

Army/PM DCATS' Enterprise Earth Terminals

1977-2010



AN/FSC-78 & GSC-39
(X-Band)

1985-2015



AN/GSC-52
(X-Band)

2004-2020



KaSTARS (Ka-Band)



Teleport (C & Ku-Band)

PE EIS

Army/PM DCATS' Earth Terminal Baseband

1977-2020



Digital Communications Satellite Subsystem

STEP FUNCTIONAL DIAGRAM

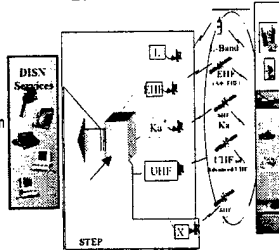


Standardized Tactical Entry Point (STEP)

1995-2010

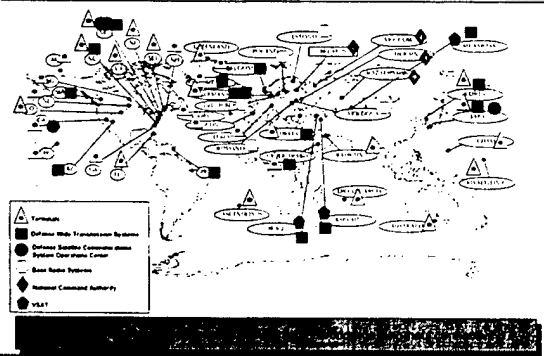
PE EIS

2004-2020



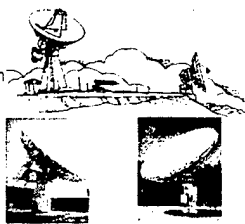
Teleport Baseband

PM DCATS Worldwide Mission



Multiband Enterprise Terminal (MET)

- V(1) – X/Ka Band
- V(2) – Ka/EHF Band
- Supports Internet Protocol (IP) and Dedicated Circuits
- Capable of High Speed Interconnectivity to Global Information Grid (GIG)
- Critical Reachback Capability for the Warfighter



PE EIS

MET Risk Mitigation Phase

- FY06 - FY08
- Low Cost Component Development and Experimentation
- Risk Mitigation Candidates
 - Simultaneous X/Ka Band
 - Antenna Feed Horn
 - Frequency Converters
 - Solid State Power Amplifiers
 - JTRS/SCA Compliance
 - Modern Waveform Developed by Joint Tactical Community
 - Ported to any SATCOM System General Purpose Processor
 - All Digital SATCOM Receiver
 - Remote Control – Minimize Need for Operator

PE EIS

MET Full Rate Production Phase

- FY09 – FY20
- V(1) X/Ka Band
 - Supports Wideband Gapfiller Satellite Constellation
 - Replace FSC-78, GSC-39, GSC-52, KaSTARS at end of life
- V(2) EHF/Ka Band
 - Teleport for Transformational Satellite Constellation
- Contract Requirements
 - Prototype
 - Test
 - Production Quantity – 79 Terminals
 - Install 8 – 10 per year
 - Spares
 - Contractor Depot

PE EIS

Multiband Enterprise Terminal (MET)

- OBJECTIVE: Develop and Procure X/Ka & Ka/EHF SATCOM Earth Terminals
- CONTRACT TYPE: TBD
- Risk Mitigation Phase
 - FY05-08
 - Contract Value - \$4.8M
- Full Production Phase:
 - FY09-FY20
 - Contract Value - \$100 - \$300M
- TECHNICAL CONTACT: Art Reiff, (732) 532-5517
- ACQUISITION CONTACT: TBD
- SOLICITATION # or RFQ #: TBD

PE EIS

DoD Standard IP Modem

- Provide Standard Internet Protocol (IP) based Bandwidth on Demand Capability for Wideband MILSATCOM
 - Efficient use of Satellite Bandwidth
 - Mesh and/or Hub-Spoke Topology
- OSD/DISA Publishing a Transponded SATCOM IP Modem Functional Requirements Document - June 2004



PE EIS

PM DCATS Proposed Procurement Approach

■ One Contract, Three Phases

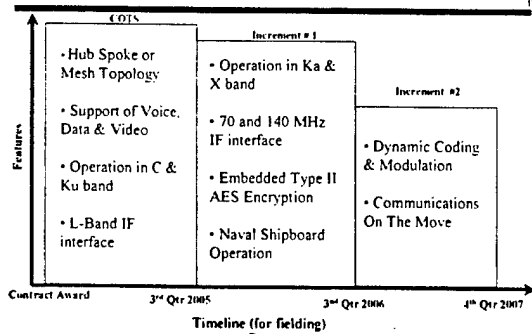
- Phase I – Purchase Commercial off the Shelf (COTS) Units
- Phase II – Engineer and Upgrade COTS Units with Increment #1 Capability (Minimum DoD Standard Features)
- Phase III – Engineer and Upgrade Units with Increment #2 Capability (Full DoD Standard Features)

■ DoD Benefits

- Quick procurement that satisfies user needs
- Cost effective & early implementation
- Interoperability – DoD Std. Modem
- A solution that meets the requirements of the community

PE EIS

Proposed IP Modem Roadmap



PE EIS

DoD Standard IP Modem

- OBJECTIVE: Procure Commercial Off-the-Shelf IP Modem and Control System Capable of Upgrade to DoD Standard
- CONTRACT TYPE: Firm Fixed Price, with T&M
- Contract Value - \$20-50M
- Major Milestones:
 - Contract Award – May 2005
 - COTS Fielding – Aug 2005
 - DoD Standard Modem Increment #1 Fielding - 2006
 - DoD Standard Modem Increment #2 Fielding - 2007
- TECHNICAL CONTACT: Art Reiff, (732) 532-5517
- ACQUISITION CONTACT: Susan Stroud, (732) 532-1109
- SOLICITATION # or RFQ #: TBD

PE EIS

PEO EIS Contract Opportunities



- Art Reiff
- PEO EIS, PM DCATS, Deputy Project Manager
- Phone: (732)532-5517
- Email: Arthur.Reiff@us.army.mil
- PEO EIS Web Page: <http://www.eis.army.mil>

PEO EIS

GUEST SPEAKER

MAJOR GENERAL MARILYN A. QUAGLIOTTI

**VICE DIRECTOR
DEFENSE INFORMATION SYSTEMS AGENCY**



Total Engineering and Integration Services (TEIS) Recompete



Craig Engel
USAISEC Critical Skills Expert
(520) 538-3172
Craig.Engel1@us.army.mil

CECOM Bottom Line: THE WARFIGHTER

1



Total Engineering and Integration Services (TEIS) Recompete



DEFINITION

Information systems engineering and information technology support services to USAISEC and other federal agencies worldwide. The services will include engineering related activities in support of all aspects of information and communication systems. Support will be required for the full life cycle of USAISEC projects to include planning, design, development, engineering, implementation, procurement, logistics, evaluation, sustainment and ancillary services.

CECOM Bottom Line: THE WARFIGHTER

2



Total Engineering and Integration Services (TEIS) Recompete




CHARACTERISTICS


- Indefinite Delivery Indefinite Quantity
- Firm Fixed Price Labor Categories
- Cost Reimbursable Line Items
- Performance Based Attributes
- CONUS and OCONUS Performance

CECOM Bottom Line: THE WARFIGHTER

3



**Total Engineering and Integration
Services (TEIS) Recompete**




STATUS/PROGRAM DIRECTION

KEY MILESTONES:


- Draft RFP Released on the IBOP April 2, 2004
- Pre-Solicitation Conference Held April 23, 2004
- Final RFP Anticipated October 4, 2004
- Anticipated Award January 31, 2005

CECOM Bottom Line: THE WARFIGHTER

4



**Total Engineering and Integration
Services (TEIS) Recompete**




CHALLENGES


- RECRUITMENT AND RETENTION OF LABOR
- USAISEC'S CHANGING MISSION
- ORGANIZATIONAL CONFLICT OF INTEREST

CECOM Bottom Line: THE WARFIGHTER

5



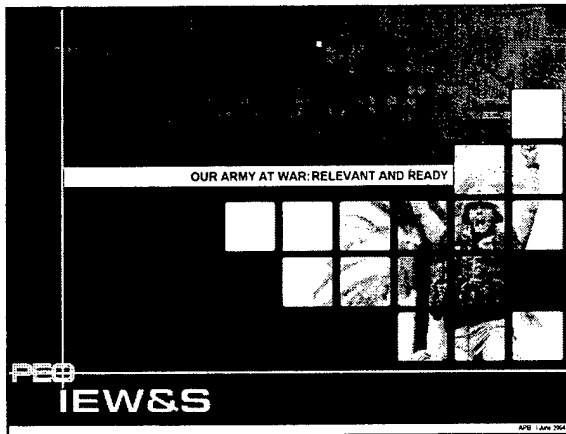
**Total Engineering and Integration
Services (TEIS) Recompete**

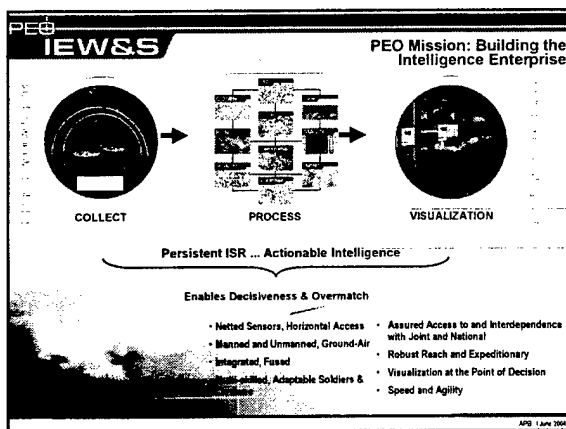


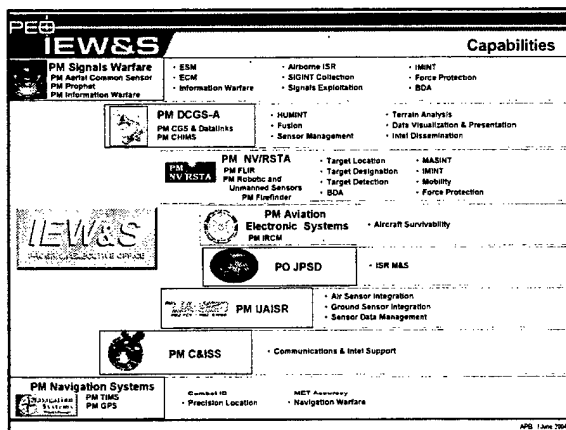
- **OBJECTIVE:** Award a multiple award task order contract (three – four awardces) for USAISEC system engineering and IT support services
- **CONTRACT TYPE:** The Government will award an indefinite delivery/indefinite quantity services contract with fixed price (pre-negotiated loaded hourly labor rates) and time and material line items
- **ESTIMATED VALUE:** Up to \$1B total requirements anticipated
- **TECHNICAL CONTACT:** Brad Blau, Phone: 520-538-8792
USAISEC Technical Director
- **ACQUISITION CONTACT:**
Kimberly A. Wentreck, Contracting Officer
Richard Wilson, Contract Specialist
Phone: 520-538-7415 or 520-538-7459
Email: Kimberly.Wentreck@us.army.mil Rich.Wilson@us.army.mil
- **SOLICITATION #:** W9128Z-04-R-0004

CECOM Bottom Line: THE WARFIGHTER

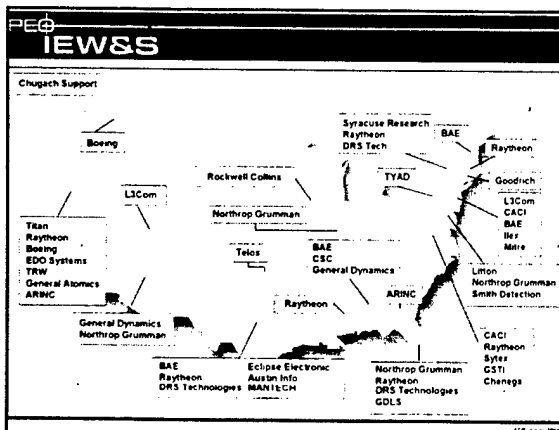
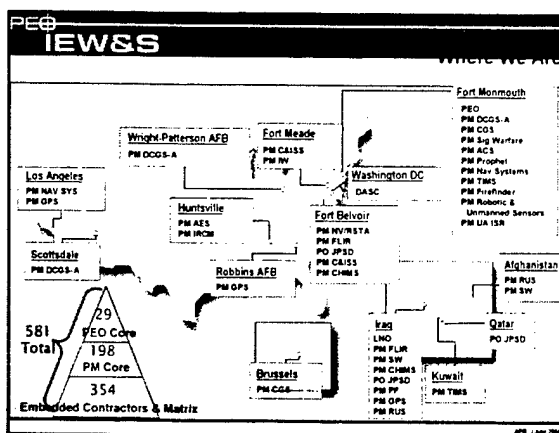
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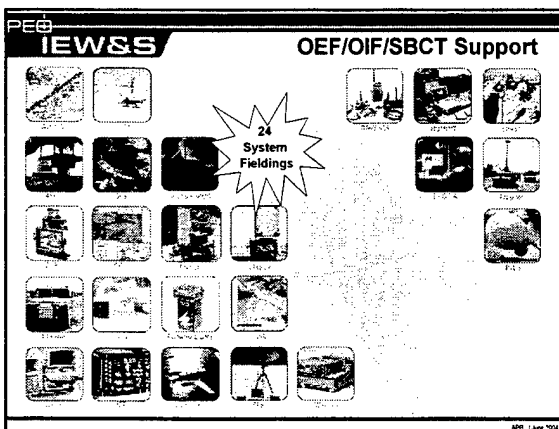
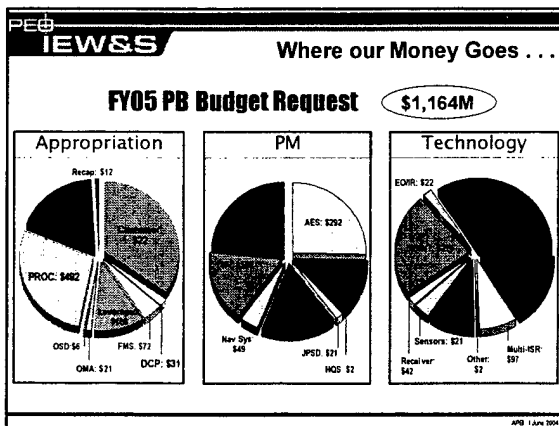
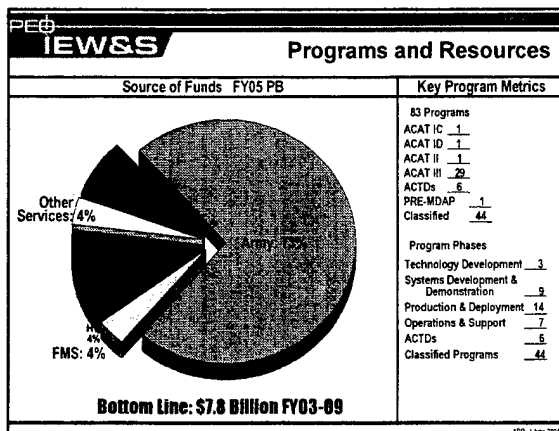






FY04 Organization									
Program Executive Office									
ENR 1st Bn S&T B&C PEO (20447-101)						With the US Surgeon C&A RA Deputy PEO (20447-101)		USAS 	
PSO 	Supplies Warfare 	DCCS-4 	IM/ASTA 	Aviation Electronic Systems 	Emergence Systems 	CSS 			
Information Warfare 	DCS 	President 	CSS Resilience / ITT 	IMS 	PLR 	Rescheduler 	MSB 	GPS 	TMS





Our Army at War: Relevant and Ready

Advanced Planning Briefing for Industry
APBI -

Aviation Electronic Systems

1-2 June 2004

Mr. John Kamadulski
 Deputy product Manager
 Infrared Countermeasures

Agenda

- Battlespace Threats
- Threat Countermeasures: Currently Deployed Solutions
- Existing / Emerging requirements: Opportunities for Industry Partnerships

National Media

Baltimore Sun, Jan 18, 04
Helicopter Defense Systems Suffer Worst In Iraq
 "... crucial maintenance problems with ... AN/AQ-144"
 "... shoulder fired missiles ... 'our greatest concern' (USMC Gen John Handy) ..."

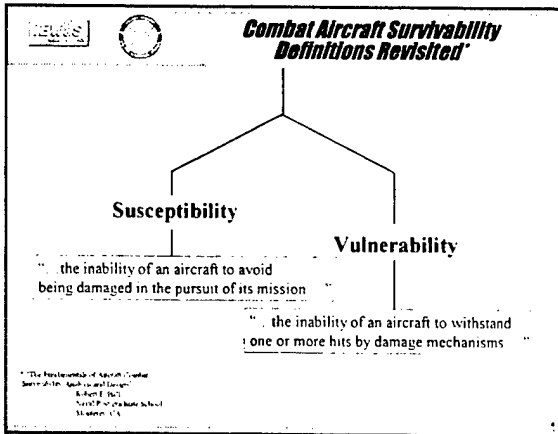
New York Times, Jan 18, 04
Iran Rebels Seen Using More Skill to Down Coverters
 "... including RPGs, SA-7's, SA-14's, and SA-16's"

National Defense, Mar, 04
Army Rushes to Deploy Defensive Gear on Aircraft
 "... to accelerate the production of the ATIRCM (Advanced Threat IR Countermeasures system) and SIRFC (Suite of RF Countermeasures) ..."

Inside the Army, 4 Jan 04
Troops in Iraq Receive Improved Missile Warning System in One Year
 "... the goal is to accelerate development and fielding of the Common Missile Warning System (CMWS) as soon as possible ..."

Inside the Army, 9 Mar 04
Army Seeking Gunfire Detection System for Helicopters in Iraq
 "... Army now wants to find a firearms detection system that can be installed on to Army aircraft ..."

New York Times, 8 Oct 03
U.S. Can't Locate Al-Sulhies Once Held in Iraq
 "... portable missiles were fired at incoming planes several times ... Al-Sulhies ... have not been reported to the public ..."







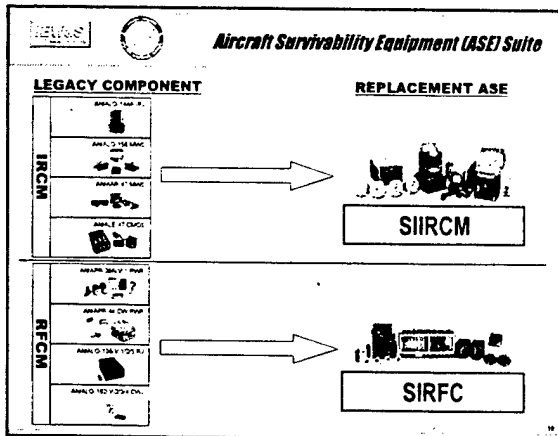


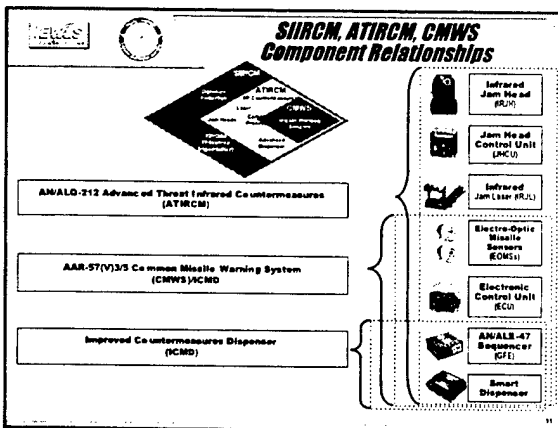
Army ASE in Use Today

- AN/ALE-47**
 - Countermeasure Dispenser Set
 - Capable of dispensing conventional or AIRCMM (M-206, M-211, M-212)
- AN/ALQ-144A**
 - Active IR Countermeasure
 - Continuously transmitting, rotating lamp
- AN/ALQ-156**
 - Missile Approach Detector
 - Pulse Doppler Radar
- AN/ALQ-136**
 - Pulse Radar Jammer
 - Automatic Radar Jamming

Army ASE in Use Today (Cont)

- AN/APR-39A(V)1**
 - Radar Signal Detection Set
 - Radar Warning Receiver
- AN/AVR-2A**
 - Laser Detecting Set
 - AN/AVR-2B: Improved accuracy; significant weight reduction
- M-130**
 - Flare / Chaff Dispenser
 - Dispenses Chaff/Flare Decoys



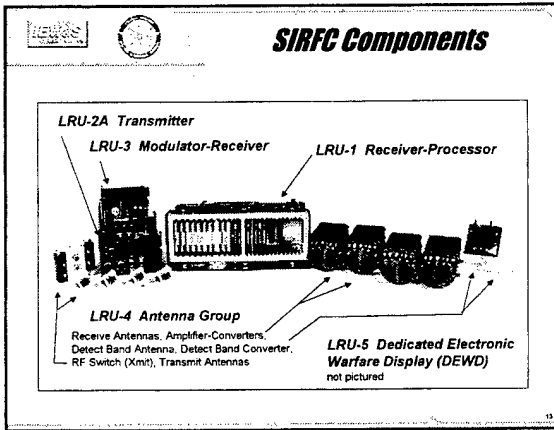


IRCM Summary

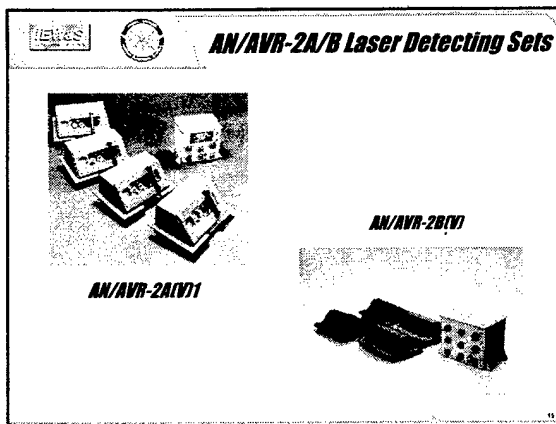
- ATIRCM / CMWS is in limited production today
- Integrations on host aircraft are ongoing
- Full-up ATIRCM to follow



"I want to see, as soon as possible, a plan to equip all our helicopters in Iraq and Afghanistan with the most effective defensive systems we have in development or procurement. Affordability is not the constraint for such a plan-- only what is doable considering technology, production, acquisition, and application."

Hon R.L. Brownlee, Acting Secretary of the Army - 7 Nov 03



RFCM Solution (Army)	
<p>Overview</p> <ul style="list-style-type: none"> US Army solution is Radar Warning Receiver (RWR) with growth to Jammer System is AN/ALQ-211(V) <ul style="list-style-type: none"> Suite of Integrated Radio Frequency Countermeasures (SIRFC) Modular design allows platform-tailored configurations 	<p>Capabilities</p> <ul style="list-style-type: none"> Situational Awareness thru RWR <ul style="list-style-type: none"> 360° Broad spectrum coverage Accurate threat location Increased protection with Jammer <ul style="list-style-type: none"> Multiple threat response Threat-specific techniques
<p>Funding</p> <ul style="list-style-type: none"> US Army funding restarts 2005 SIRFC will replace existing legacy RF ASE 	<p>Roadmap – 2005 - 2009</p> <ul style="list-style-type: none"> Develop B-kit leveraging existing variants Aircraft integration & qualify/test B-kit Procure B-kits Install B-kits on aircraft





AN/AVR-2A(V) Laser Detection Set



- Customers: US Army, US Navy, USMC, SOF, UK MOD
- Aircraft: AH-64D, OH-58D, UH-60L, HH-60H, CH-47E, MH-60K, MH-47E, MV-22, EH-101, AH-1W, UH-1N, RAH-66
- Performance: Bands I, II, III, AOA Quadrant, Band IV P1
- Threats: Rangefinders, Designators, Detected: Anti-Helicopter Beamriders
- Interfaces: APR-39, RS422, 1553 (Option)
- Systems Delivered: AVR-2 - 644, AVR-2A - 1157; Backlog - 113
- Future Requirements: US Army 1600, US Navy 700

- Very Low False Alarm Rate
 - < 1 per 4 hours
- Lightweight
 - 23 pounds (4 Sensor Version)
- Highly Reliable
 - > 600 hours MTBF for AN/AVR-2
- Easily Maintained (Organizational and Intermediate)
- Standard Laser Warning Receiver
 - Fielded by US Army Navy Marines and SOF

Addressing Future Requirements: Opportunities for Industry Partnerships

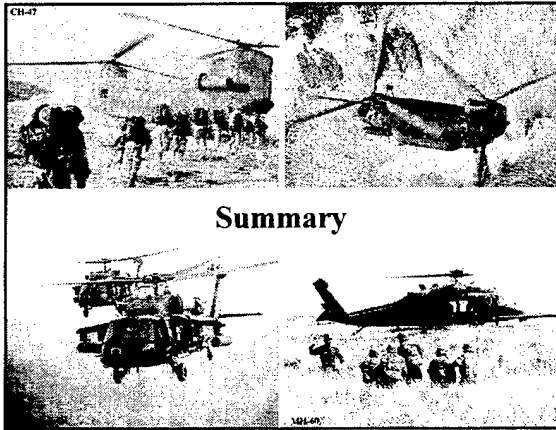
- Miniature, low cost sensors and countermeasures capable of detecting and defeating:
 - Small Arms fire
 - Rocket Propelled Grenades
 - Laser Guided Beam Rider Missiles
 - Anti-helicopter Mines

Science and Technology Objectives (STOs)

- Multi-Role Airborne protection System (#AMR-06)
- Low Cost Threat Warning (transitioned to TARDEC: TAR-14 Integrated Survivability ATD in FY04)

EW Countermeasures for Small Arms, RPGs, and Helicopter Mines



[illegible]

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PM NV/RSTA Sensors In Operation Iraqi Freedom

LRAS3 with 3rd Infantry Division In "Operation Iraqi Freedom"

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PM NV/RSTA Sensors In Operation Iraqi Freedom

See First... Understand First... Act First... Finish Decisively!

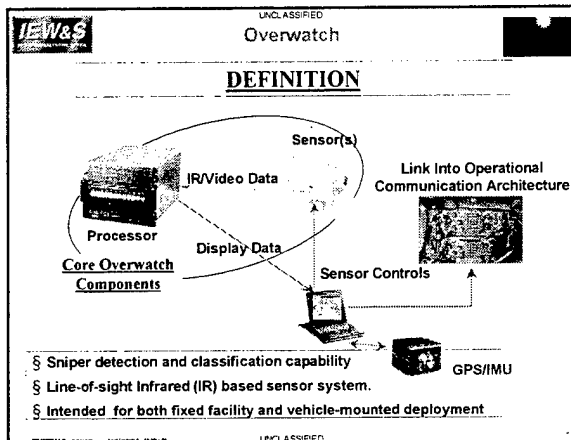
See First... Understand First... Act First... Finish Decisively!

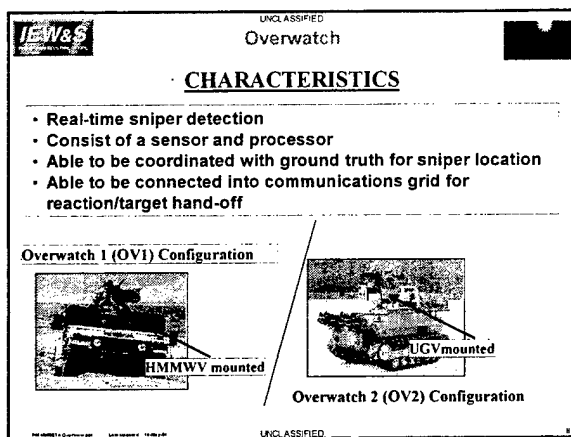
UNCLASSIFIED

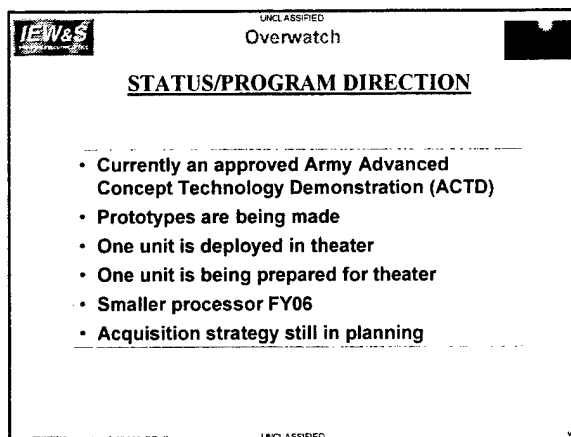
Overwatch


• Tom Conway
• Senior Engineer
• (703) 704-2661
• thomas.conway@nvl.army.mil

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Overwatch





CHALLENGES

- Low quantities
- Still in S&T phase
- Awaiting 'user' feedback
- Capability cuts across many potential programs
- Size and weight of core components




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Overwatch




- OBJECTIVE: Detection and classification of sniper fire
- CONTRACT TYPE: TBD
- ESTIMATED VALUE: TBD
- KEY MILESTONES: ACTD ends FY07
- TECHNICAL CONTACT: Mr. Tom Conway, (703) 704-2661
- ACQUISITION CONTACT: TBD
- SOLICITATION # or RFQ #: TBD




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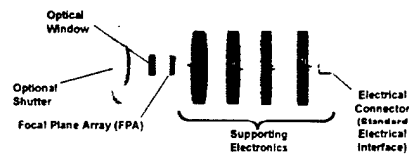



UNCLASSIFIED
Uncooled B-kit Demo/Qualification




DEFINITION

Design and develop a common thermal module that integrates potentially into soldier applications, ground vehicle applications, airborne applications, and missile applications.





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UNCLASSIFIED
Uncooled B-kit Demo/Qualification

CHARACTERISTICS

- Uncooled Thermal Technology
- 640X480 FPA (U3)
- Defined by Performance Specification and Interface Control Document

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Uncooled B-kit Demo/Qualification

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Uncooled B-Kit

STATUS/PROGRAM DIRECTION

• Specification and ICD Version 1.0 completed (Mar 04)
 • Currently under contract for Phase I

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Uncooled B-kit Demo/Qualification

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Uncooled B-kit Demo/Qualification

CHALLENGES

- Size, Weight, & Power
- Interchangeability
- Performance
- Modularity

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Uncooled B-kit Demo/Qualification

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Uncooled B-kit Demo/Qualification

• OBJECTIVE: The objective of the Uncooled B-kit Demo/Qualification phase of the program is to design and develop a module that will meet the UBK ICD and Performance Specification. In addition, multiple vendor's modules will need to be interchangeable as demonstrated in a DVE.

• CONTRACT TYPE: CPFF; approximately 12 months in duration

• ESTIMATED VALUE: 3 awards totaling \$5M.

• KEY MILESTONES: RFP release August 2004; Contract award Jan 2005

• TECHNICAL CONTACT: Major Fritzgerald McNair (703) 704-4070, DSN 654-4070

• ACQUISITION CONTACT: Ms. Debra Gilligan, CECOM Acq. Center, 732-532-5454

• SOLICITATION # or RFQ #: TBD

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EO/IR/LD Payload for ER/MP UAV

DEFINITION

Definition: The Army is funding the development of a new Unmanned Air Vehicle (UAV) to meet the requirements of the Extended Range/Multi Purpose (ER/MP) UAV ORD (Pending JROC Approval)

- PM UAVS under PEO Aviation will be soliciting for the Air Platform
- PM RUS under PEO IEW&S will be soliciting for the EO/IR/LD Payload

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EO/IR/LD Payload for ER/MP UAV

CHARACTERISTICS

- Characteristics of the payload are being finalized, but the following requirements are known:
 - Payload Weight: 100lbs or Less
 - Size: 1.9 Cu Ft or Less
 - Power: < 900 Watts
 - Recognition Slant Range: 8Km
 - Laser Designation Slant Range: > 8km
 - System Target Location Error: 25m or Less

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EO/IR/LD Payload for ER/MP UAV

STATUS

- Request For Information sent to Industry
 - PM UAVS Hosted ER/MP Industry Day on May 5th
 - Final EO/IR/LD Solicitation being prepared for May Release
 - Anticipate EO/IR/LD Contract Award by Dec 2004.

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EO/IR/LD Payload for ER/MP UAV

CHALLENGES

- Schedule
 - First payload required for Host Platform Integration by 2nd Quarter FY06
 - Balance of Payloads due by 4th Qtr FY06
- Performance
 - Accuracy Requirements will be demanding
- Cost
 - Minimal Development funding
 - Need to minimize recurring payload cost to support UAV application.

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EO/IR/LD Payload for ER/MP UAV

- Contract Type
 - To Be Determined.
 - Estimated Value: \$10M
- Key Milestones
 - Award – Dec 2004
 - Initial Delivery – Jan 2006
 - Final Delivery – July 2006
- Technical Contact – Eugene Lehman, APM Payloads

Phone: DSN 987-8007 COM: (732) 427-8107
 FAX: DSN 987-5072 (732) 427-5072
 Email: Eugene.Lehman@iev.s.monmouth.army.mil
 Address:
 PM R115
 Attn: SFAE-IEW&S-NV-RUS (E. Lehman)
 Bldg. 2525, Box 2
 Charles Wood Area
 Fort Monmouth, NJ 07703 5503
- Solicitation #: TBD

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Next Generation UGS

DEFINITION

- PM RUS is Responsible for the Development and Fielding of Current Generation UGS (REMBASS II) and the management of Future Combat System UGS for the Unit of Action (UA). There is also a requirement for near term UGS that are lower cost and more capable than current UGS for use in Force Protection and potentially in the Army's Task Force Modularity efforts to turn today's Army in to Units of Action.
- PM RUS is looking to pursue Next Gen UGS for Force Protection, leveraging our experience with Today's UGS and our efforts with FCS UGS.

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Next Generation UGS


CHARACTERISTICS

- Low Cost
- Trip Detection Capability
- Provide for Rapid/Remote Emplacement
- Extended Range Communications
- ID Capability
- Extended Operation without Battery Replacement
- Reprogramming ability
- Interface to current and future Army Battle Command Systems
- Tactical, force protection and border security operation
- Networked

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Next Generation UGS

STATUS/CHALLENGES


- Status:
 - Currently in study phase researching sensors currently in production, development and commercial as alternatives.
 - Will be soliciting in FY05 for Industry Solutions
- Challenges:
 - Schedule; Delivery in FY05 If Possible
 - Performance; Extended Communications Ranges and Operation on Battery Power
 - Cost; Will need to be expendable



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Next Generation UGS

- Contract Type: TBD
- Estimated Value: \$7M
- Key Milestones;
 - RFP Release: Nov 2004
 - Contract Award: Apr 2005
 - Delivery: Nov 2005
- Technical POC – MICHAEL C. KARPIC

PM Robotic & Unmanned Sensors
Phone: DSN 987-6848/ COM (732)427-6848
FAX: DSN 987-5072/ (732)427-5072
Email: Michael.Karpic@iew.s.monmouth.army.mil
Address: PM RUS
Attn: SFAE-IEW&S-NV-RUS (M. Karpic)
Bldg 2525, Bay 2, Charles Wood Area
Fort Monmouth, NJ 07703-5503
- Solicitation #: TBD




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OWL/SADA

DEFINITION

SADA – Standard Advanced Dewar Assembly
OWL – One Watt Linear cryogenic cooler

In support of


HTI SGF – Horizontal Technology Integration
Second Generation Forward Looking Infrared




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OWL/SADA

CHARACTERISTICS

- SADA is detector/cooler combined
- Cooler is similar to older; but longer life, more reliable
- 12,000 hours vs. 4,000 hours
- Interchangeable with 2nd GEN HTI in terms of form, fit & function




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 OWL/SADA




STATUS

- Customer wants longer reliability cooler
- Assembly buy possible
- RFP June 04
- Contract award Aug 04

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 OWL/SADA




CHALLENGES

- 12K hour cooler
- Frequent customer requests for acceleration
- Repair turn around
- Working to combine SADA/OWL buys

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UNCLASSIFIED
 OWL/SADA



- OBJECTIVE: Procure SADAs... Improve life if possible
- CONTRACT TYPE: FFP
- ESTIMATED VALUE: ~ \$31M
- KEY MILESTONES: RFP Jun 04, Award Aug 04
- TECHNICAL CONTACT: Kyle Peddicord, (703) 704-0143
- ACQUISITION CONTACT: Janet Colyard, 732-427-1464
- SOLICITATION # or RFQ #: TDD

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IEW&S
INTELLIGENCE EVALUATION & SUPPORT

BICU

DEFINITION

Biocular Image Control Unit (BICU)



The diagram illustrates the BICU's role in maritime surveillance. On the left, a small boat is shown on the water. In the center, a smaller inset image shows a close-up of the boat. On the right, a large, detailed image of the BICU unit is shown, which is a rectangular device with a large circular lens or sensor on the front. A line connects the inset image to the BICU unit, indicating that the unit is used to capture and process the image of the boat.

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BICU

CHARACTERISTICS

- 5 year, multi-year award with incremental funding
- FY04 procurement of 64 Block 0 BICUs (base) + 65 (options)
- FY04 procurement of 125 Block 1 BICUs (base) + 400 (options)
- Ship Block 0 units starting Oct 05
- Ship Block 1 units starting Sep 05

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BICU

STATUS

- Block 1 is an ECP to the current design
- (MIL-PRF-12978041) spec requirements

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BICU

CHALLENGES

- Block 1 BICU design not yet requalified
- ECP to be available 1 Jun 04

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BICU

- OBJECTIVE: Procure Block 0 & Block 1 BICUs, 189 base & 465 options
- CONTRACT TYPE: FFP, multi-year with options
- ESTIMATED VALUE: Base -- \$4M, Total value -- \$14M
- KEY MILESTONES: 1st delivery Sep 05
- TECHNICAL CONTACT: Michael Doney, (703) 704-1422
- ACQUISITION CONTACT: Ms. Debra Gilligan, CECOM Acq. Center, 732-532-5454
- SOLICITATION # or RFQ #: None yet

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UNCLASSIFIED
Closing

Website address-
<https://peoivms.monmouth.army.mil/nvrsta>

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MISSION

PM VV/MSA develops, acquires, and provides superior, affordable day/night vision systems, weapon locating systems, and multi-sensor systems to the American warfighter.

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FUTURE COMBAT SYSTEMS

FCS

One Team-The Army/Defense/Industry

**Network Integration for FCS Equipped Units of Action:
Bringing Net-Centricity to the Future Force**

Advance Planning Briefing for Industry
2 June 2004
Fort Monmouth, NJ

COL Jonathan Maddux PM UA Network Systems' Integration Fort Monmouth, NJ	Mr. Donald DePree Lead C4ISR IPT, LSI Huntington Beach, CA
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***Program Manager's Intent: Field FCS-equipped Units of Action with
Threshold Future Force Capability by the End of the Decade***

Outline

- FCS Program Overview
- C4ISR Capabilities
- C4ISR Related Challenges

FUTURE COMBAT SYSTEMS
FCS
One Team-The Army/Defense/Industry

BRN7001-1-001-0000
3

US Army's "Future Force" Vision & FCS User Requirements

Future Force

- Joint, Interagency and Multi-National Capabilities
- Increased Strategic Responsiveness
- Dominant across Full Spectrum Operations
- Campaign Quality Force
- Enabled by Knowledge
- Adaptive Modular Organizations
- 3-7 Days Self-sustainment
- FCS: Family of Systems/ Systems of Systems
- Soldiers and Leaders Enabled by Technology

Future Force "Space to Man" (vertical text on left)

Future Force "Factory to Platform" (horizontal text at bottom)

What Is Future Combat Systems?

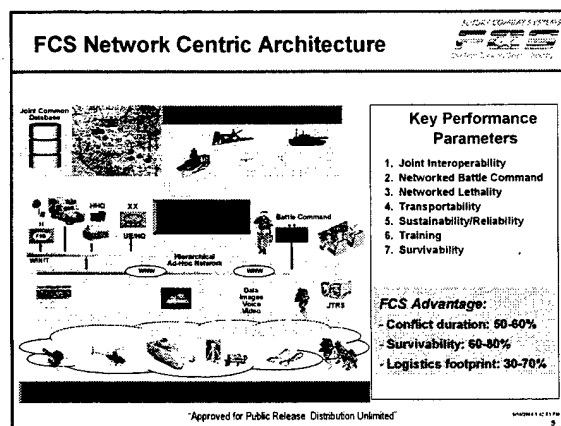
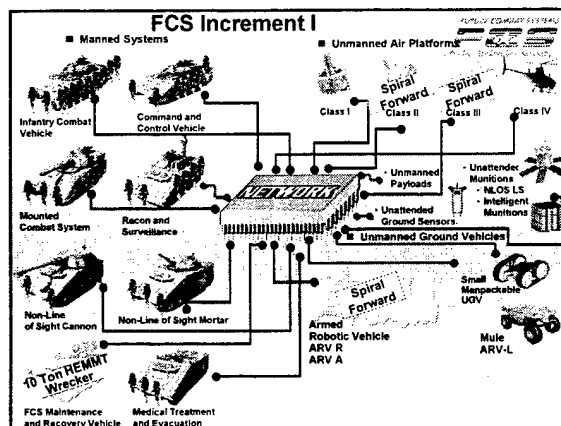
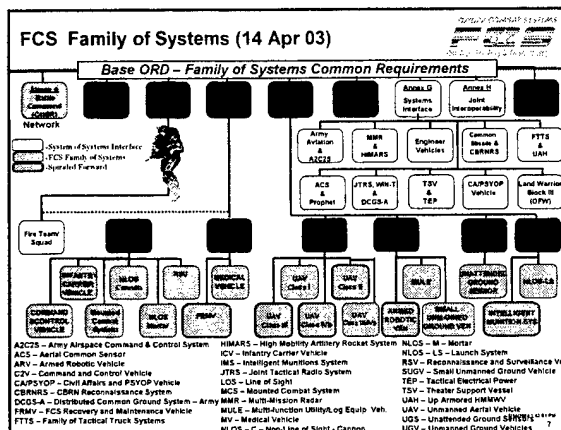
- FCS is a highly integrated structure of manned and unmanned, air and ground assets, bound by a distributed network to act as a unified combat force
- FCS has the full spectrum of combat functions inherent in its capabilities, including embedded training and supportability
- FCS is readily task organized for the mission
- FCS is the basic building block of the Future Force and the Unit of Action (UA)

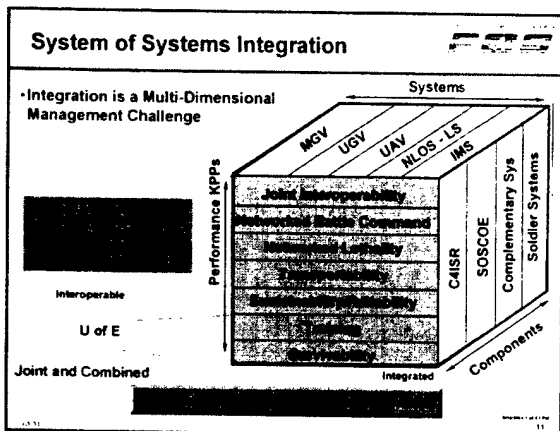
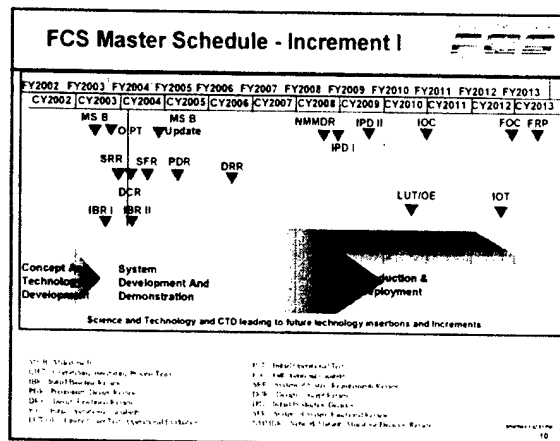
Units of Action (vertical text on right)

Units of Action (horizontal text in middle)

Objective - An Integrated Unit of Action

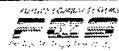
- Requirements allocated and derived from an integrated architecture
- Developed by the "One Team" Partners
- Multiple integration objectives
 - Vertical
 - Horizontal
 - KPP Performance
 - U of E and JIM
- Capabilities developed, integrated and tested incrementally





- ### Key Tenets of the Program
- Create Opportunity for *Best of Industry* to Participate
 - Leverage Government *Technology Base* to Maximum Extent
 - Associate On-Going Enabling Efforts With LSI-Led Activity
 - *Collaborative Environment* from Design Through Life Cycle
 - As a Minimum, *Commonality* at Subsystem/Component Level
 - Design/Plan for *Technology Integration and Insertion*
 - Maintain and Shape the *Industrial Base* for the Future
 - Retain *Competition* throughout Future Force Acquisition
 - Appropriate *Government Involvement* in Procurement Processes
 - Consistent and Continuous *Definition of Requirements*
 - Maintain and Shape *Government Acquisition Community*
 - Program *Affordability* — Balance Performance and Sustainment
 - *One Team* — Equipping the Joint Warfighter with the World's Best Capability

Overarching Acquisition Strategy

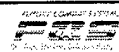


- Buy Future Combat Systems; Equip Soldiers; Field Units of Action (UA)
- Embrace Evolutionary Acquisition While Requirements Mature
- Contracting via Lead Systems Integrator
- Demonstrate Live and Virtual-Force Operational Capabilities of the UA
- Balance Test and Evaluation With Modeling and Simulation
- Sustain DARPA/Army Collaborative Relationship for the Future
- Expand to Joint, Interagency, and Coalition Partners
- Design for Supportability-Performance-Based Logistics
- Identify and Manage Risk Throughout the Program

*It Is About the Networked System of Systems...
and How it Enables Dominant Land Combat.*

ARMY COMBAT SYSTEMS
13

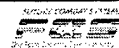
Competition Plan



- Competition is a key Tenet of the Program
- Promotes Competition to the maximum extent
- Capitalize on Broad Industry Announcement process
 - Identifies and share sources for key technology areas
 - Continued Market Research to identify and incorporate:
 - Small Businesses/Non-Traditional Defense Contractors
 - Technology requirements for technology insertion
- Involves all Major Partners in Process
- A key Flow down in all major contracts
- Strategy encompasses Boeing/LSI Best Practices
 - Best Value approach to source selection
 - Senior Government participation in all phases including final source selection approval
 - Small and Non-traditional Business participation
 - Partner involvement to achieve horizontal integration

ARMY COMBAT SYSTEMS
14

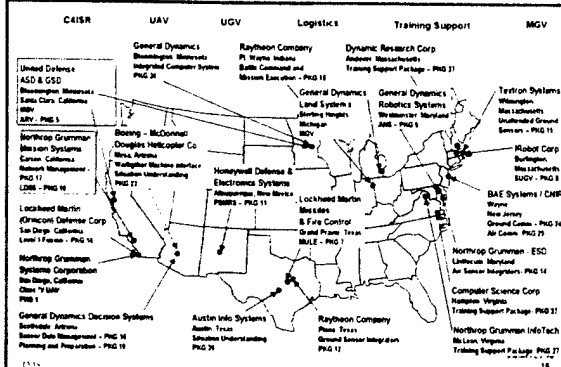
Contracting Approach



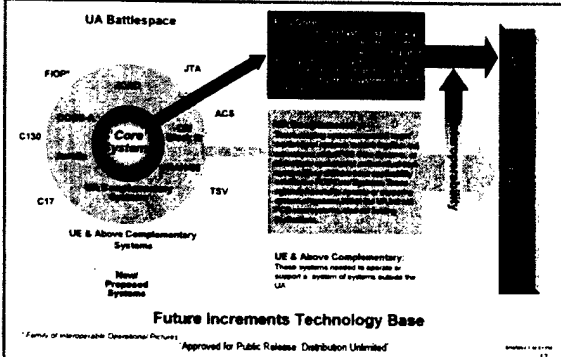
- Broad Industry Announcements (BIA's)
 - Utilize BIA process to identify and include the Best of Industry for FCS
 - Significant industry participation (over 4500 proposals evaluated)
- Conducted Nine industry briefings with over 1100 participants
- System Design and Development (SDD) Competition
 - Significant industry participation in Specification, SOW and and RFP development
 - RFPs unrestricted to industry
 - Over 1600 RFPs released to 309 suppliers for 23 subcontracts
- Conducted "Best Value" source selection
 - 23 supplier partners selected (21 large and 2 small)
 - Debriefs given to suppliers detailing ratings and rankings
- FCS policy encourages Small business participation
 - Small businesses are a large part of our "Best of Industry" team
 - Small business plan is aligned to contract goals that are flowed down to our large business partners

ARMY COMBAT SYSTEMS
15

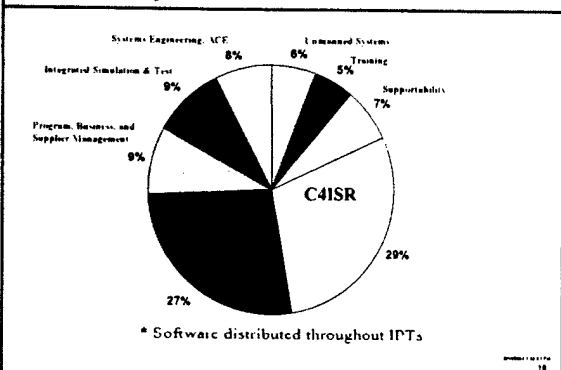
The figure consists of three sub-diagrams labeled (a), (b), and (c). Each sub-diagram shows a top-down view of a vehicle's footprint on a grid. Sub-diagram (a) shows a single rectangular footprint. Sub-diagram (b) shows two rectangular footprints placed side-by-side horizontally. Sub-diagram (c) shows two rectangular footprints placed one above the other vertically.



4. The following information is provided for the year ended 31/12/2014:



$\Delta_{\text{H}_2\text{O}} = 0.7 \times 10^6 \text{ cal/mole}$



23 Procurement Packages

(C4ISR = 12 + SOSCOE)

11 Pkgs are Non-C4ISR

- Class IV UAV
- Class III UAV
- Class I UAV
- Class II UAV
- ARV
- MULE
- SUGV
- Auto Nav*
- LDSS*
- PS/MRS*
- Training Support Pkg

12 Pkgs are C4ISR

- C2**
 - Battle Cmd/Mission Execution
 - Planning and Preparation
 - Situation Understanding
 - Warfighter Machine Interface*
- C&C**
 - Network Management
 - Ground Vehicle Comm Integrator*
 - Air Vehicle Comm Integrator*
 - Integrated Computer
 - Ground Vehicle Sensors*
- ISR**
 - UAV Sensors*
 - Unattended Ground Sensors
 - ISR Fusion

* At the boundaries - Require additional coordination with other systems

C4ISR Work Packages

General Dynamics - Bloomington, Minnesota
Integrated Computer System - PKG 26

Boeing, Mesa, AZ
Warfighter Machine Interface - PKG 23

Northrop Grumman Mission Systems - Carson, California
Network Management - PKG 17

Lockheed Martin (Orion) Defense Corp - San Diego, California
Level 1 Fusion - PKG 16

General Dynamics Decision Systems - Scottsdale, Arizona
Sensor Data Management - PKG 15

Austin Info Systems - Austin, Texas
Situation Understanding - PKG 20

Raytheon Company - Ft. Wayne, Indiana
Battle Command and Mission Execution - PKG 19

Tacticon Systems - Wilmington, Massachusetts
Unattended Ground Sensors - PKG 13

BAE Systems/CNIR - Wayne, New Jersey
Ground Comm - PKG 24
Air Comm - PKG 25

Northrop Grumman Sys Corp - Linthicum, Maryland
Air Sensor Integrators - PKG 14

Raytheon Network Systems - Plano, TX
Ground Sensor Integrators - PKG 12

Outline

- FCS Program Overview
- C4ISR Capabilities
- C4ISR Related Challenges

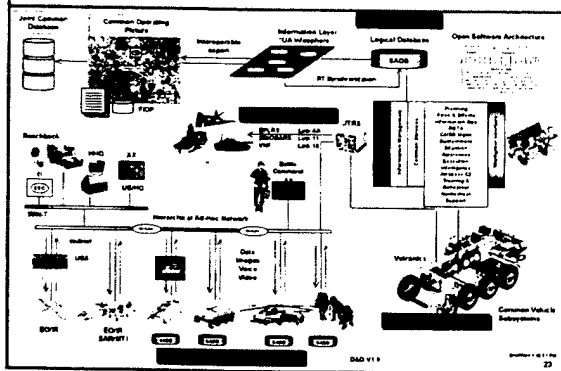
Network Centric Operations

- A warfighting approach that emphasizes *speed*, *precision*, *flexibility*, and superior *knowledge* to concentrate combat power, and prevent resistance.
- Key Attributes:
 - *Information Superiority* through widespread Networked Communications
 - Common information availability to create *Shared Awareness*
 - Increased Speed of Command and Adaptability by using *Intelligent Decision Aids*



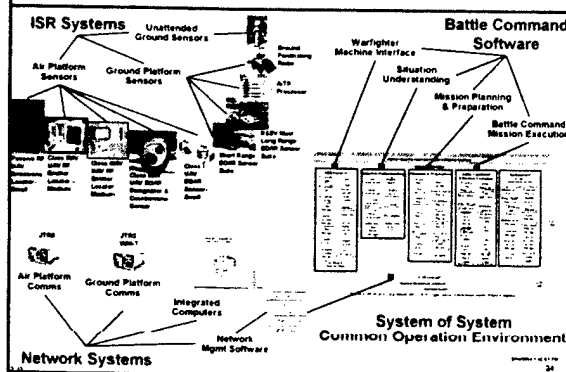
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C4ISR Overview



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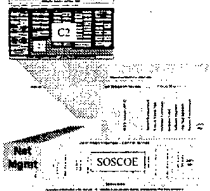
C4ISR Components



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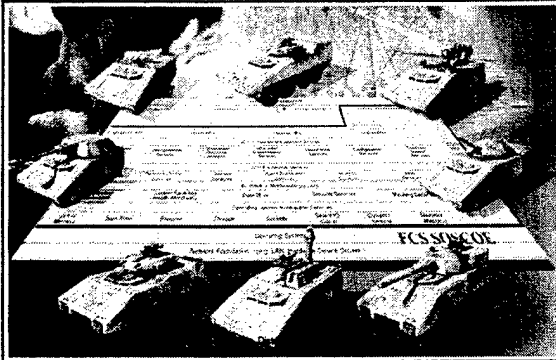
Major C4ISR Software Components

- SOSCOE – System of System Common Operating Environment
 - Admin Services
 - Application Program Interface
 - Information Management Services
 - COTS NDI
- Command and Control (C2) Applications
 - Battle Command & Mission Execution
 - Planning and Preparation Services
 - Situational Understanding
 - Warfighter Machine Interface
- Network Management



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System of Systems Common Operating Environment (SOSCOE)



SOSCOE: The Key to System of Systems Integration

- Eliminate C2 stovepipes and reliance on special purpose systems
 - Common C2 software systems for all warfighters
 - Echelon- and mission-appropriate functionality conditioned by C2 policies
 - Minimum number of special purpose systems for specialized functions
- Develop an evolving system based on open system, standards based software architectures
 - Use of legacy codes within a modular software architecture
 - Minimum use of legacy systems
- Distribute functionality to the lowest level possible by resource allocation
 - Dynamic, automatic allocation of resources based on Commander's intent, Priorities, and Rule Sets (Orders)
 - Rapid response of support to units (Fires, etc.)
 - New codes and capabilities to enable core NCW functionality
 - Automatic allocation
 - Dynamic adjustment
 - Commander sets thresholds and parameters
- Enable real-time, dynamic collaboration based on task similarity, situation, mission
 - Team of teams – orient to common goals
 - De-emphasize hierarchical structures
 - Erect fractal C2 structures to organize functionality and code packages by echelon, role and mission
- Mechanisms
 - Softwiring
 - Implement doctrine by configuration settings, not by hardwiring task flows
 - Design in the capability to evolve through experimentation
 - Virtual Staff
 - Services and automated agents
 - Split Staff operations
 - Reduced footprint in area of operations
 - Collaboration made transparent and ubiquitous
 - Automation
 - Dynamic task groups
 - Dynamic networking
 - Ubiquitous C2 and information management services
 - Distributed, low latency peer to peer information management

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System of Systems Common Operating Environment (SOSCOE)

The diagram illustrates the SOSCOE architecture, showing a layered structure. At the top, it lists 'Vehicle Applications', 'Mission Applications', 'Business Applications', and 'Administration Applications'. Below these are 'Application Program Interfaces - Common Services', which include 'SOS Replication Services', 'SOS Resource Services', 'SOS Management Services', 'Network Management Services', 'Operating System Distribution Services', and 'Operating System'. The bottom layer is 'Operating System', which includes 'Real-time Operating System', 'A/g. Network OS', 'SOSCOE Engine Services', 'SOSCOE Services', and 'SOSCOE Applications'.

- PCS will deploy software applications over the SOSCOE to manage distribution of information between computing nodes independent of their location on the network
- PCS Applications share information through SOSCOE databases to reduce interface complexity
- PCS Applications interoperate with external systems through use of remote proxies
- SOSCOE is a layer of software that manages delivery and synchronization of information across the PCS UA
- SOSCOE provides a open application interface and isolates Battle Command Applications from the ad hoc network

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C2 Services - "Plug & Play"

The diagram shows the 'Human Machine Interface (HMI)' and the 'System of Systems Common Operating Environment (SOSCOE)'. The HMI is divided into several sections: 'Mission Management', 'Planning & Preparation', 'Battle Command & Mission Management', and 'Support'. Each section contains a list of services and functions. The SOSCOE is shown as a layer below the HMI, providing a common operating environment for the services.

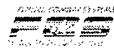
System of Systems Common Operating Environment (SOSCOE)

C2 Procurement Objective

- All components (C2 services) will be based on an open system architecture and facilitate block upgrades spiral development throughout the life of the C2 system
- These C2 services are the 'building blocks' or 'primitive functions' designed to support an integrated C2 system
- Identification and definition of C2 services focuses on the minimization of stovepipe functions and applications
- A "service" will be developed once and reused by other "service" providers
 - An independently compiled software unit that knows how to perform some foundational tasks
 - The set of C2 services is non-overlapping and spans the C2 problem space

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WMI

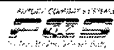


- Integrates the FCS warrior's visualization and interaction needs for data and services across all manned ground vehicles and support equipment. A key characteristic will be the ability to separate the WMI visualization and interaction methods provided to the FCS war fighter from the generation of data and services within the underlying applications
- The WMI Software Layer is an integral part of the FCS Software Architecture and integrates the FCS war fighter's visualization and interaction needs for data and services across all manned ground vehicles and associated off-vehicle equipment.
- The WMI concept also extends to control unmanned vehicles and non-developmental vehicles.

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Planning and Preparation

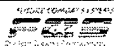


- Supports development of plans and the preparation of the Unit of Action to execute them.
- This package supports all planning, rehearsal, and preparation activities related to FCS UoFA missions.
 - Planning packages need to support planning activities prior to, during, and after a given mission.
 - Anticipatory planning that occurs during battle execution, that is, during a mission, will utilize planning algorithms from this package as well.
 - Constructive simulation and evaluation are supported.
 - Preparation includes virtual simulation, AAR, training, and mission rehearsal.
 - Planners provide editors where necessary to allow modifications to the planner objectives, constraints, and recommendations from the operator.

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Battle Command



- Provides the functions and services to conduct, refine and execute missions
- Includes the functionality to:
 - Access data from national technical means
 - Allocate effectors to targets and conduct fires
 - Request artillery support from UE, synchronize fires with air-ground operations
 - Assess enemy actions and collect friendly force information
 - Evade and escape, protect dismounted soldiers and platforms
 - Request artillery support from UE, synchronize fires with air-ground operations

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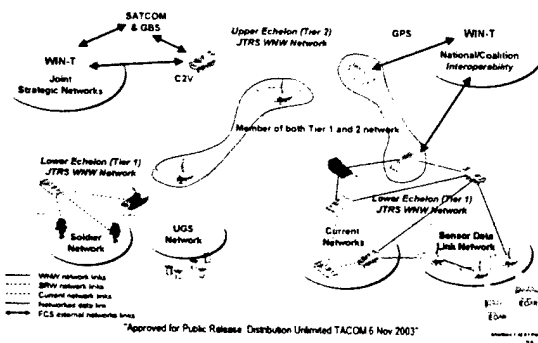
Situation Understanding

- This component of C2 contains the services needed to support the war fighter in any role, in building a sufficient understanding of the situation for that role that seeing first and acting optimally is the most likely outcome.
- It gathers the common operational picture (COP) data for the scope of that role by employing the four levels of intelligence fusion and augmenting that with high fidelity records of mission progress and readiness.
- It engages the war fighter in evaluations and reporting as needed through the War fighter Machine Interface (WMI).
- It relies on Information Management (IM) services to publish and subscribe the needed data.

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Network Communications Architecture



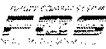
Comms Network Management Functions

- Network Management
- Fault and Performance Management
- Configuration and Reconfiguration Management
- Security Management
- Key Management
- Spectrum Management
- Policy Management
- Network Planning
 - High Level Planning
 - Detailed Mission Planning
 - Dynamic Re-Planning and Reconfiguration
- Performance
 - Capacity/Scalability
 - Bandwidth Consumption
 - Latency/Response Time
 - Accuracy

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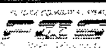
Integrated Computer System



- The C4ISR computer system will be provided by a single Prime contractor
- Deliverables
 - Hardware
 - Processors, displays, controls, storage, memory, I/O, power, etc
 - Software
 - Operating System
 - Operating System extensions
- Driving design considerations
 - Open Architectures and Standards
 - Commonality
 - Upgrade ability
 - Maximize ability to utilize technological advances
 - Minimize impacts of technology obsolescence

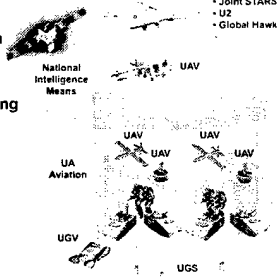
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See First/Persistent ISR



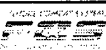
Distributed/Networked Sensors

- Provides unequalled Situational Awareness down to the Soldier System
- Enhances survivability through knowing and avoiding enemy fires
- Enables precision engagement beyond the effective range of the opponent
- Maintain contact and engagement in detail throughout the mission



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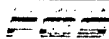
Outline



- FCS Program Overview
- C4ISR Capabilities
- C4ISR Related Challenges

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Sensor Related Challenges



- Mine Detection
- Lightweight, Low Cost, High Quality UAV Sensors
- Through the Wall Sensors
- FOPEN (sensing through foliage)
- Unattended Ground Sensors Dispenser
- Combat ID
- Directional Broadband Antennas

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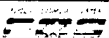
Networking/C2 Related Challenges



- Ad Hoc Wireless Network
- Quality of Service Driven Network
- High Data Rate Comms
- Unmanned Relay
- Network Centric C2
- Collaborative C2 / Warfighter Machine Interface

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Facilitating the Future



.....How to "Get There" from here.....

- Unprecedented "Partnership"
- Revolutionary/Evolutionary Acquisition Approach
- "Best of Industry" Business Approach
- Spiral Development/Technology Insertion
- Integrated Simulation and Test

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